

# RCMA

## NEWSLETTER

OCTOBER 1979



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FOR YOUR INFORMATION

1. All club business, unless otherwise noted, must be addressed to: RCMA, P.O. Box 4563, Anaheim, CA 92803. This includes matters that relate to renewals, changes of address, Newsletter delivery problems, etc.
2. Input to the RCMA Newsletter must be mailed to the proper editors whose addresses are included in the column headings. If in doubt or if no particular column seems to be appropriate, send it to: RCMA, P.O. Box 4693, Riverside, CA 92514. Please do not include matters of club business.
3. RCMA Newsletter back issues (reprints) - For information and prices send a self-addressed, stamped envelope to: RCMA, P.O. Box 4563, Anaheim, CA 92803.
4. To forward a letter to a specific RCMA member whose address you do not know, put your message to that person in a stamped envelope with your return address in the upper left corner. Put this and your instructions for remailing in another envelope and mail to: RCMA, P.O. Box 408, Earp, CA 92242.
5. It would be appreciated if you would include your RCMA membership number with all correspondence to the Newsletter Editors or to Headquarters.
6. If you require a reply when writing to RCMA Headquarters or one of the Editors you MUST include a self-addressed stamped envelope.
7. Please write only on one side of the paper.
8. Please do not combine in one letter items that should go to different addresses.
9. If you are inclined to type what you submit to the Newsletter, please use a 6-1/4 inch column width with 1-1/8 inch margins on each side and single space. Doing this may save an editor from having to retype the material. Please do not use "script" type.
10. Your RCMA membership number and expiration date appear on your Newsletter mailing label.
11. Your copy of the Newsletter should arrive between the 2nd and 3rd Friday of the month for which it is dated.
12. One page and one-half page advertising rates are \$25 and \$15 respectively. For information, send a business-size SASE with your request to: RCMA, P.O. Box 4563, Anaheim, CA 92803.

The RCMA Newsletter is published monthly by the members of the RADIO COMMUNICATIONS MONITORING ASSOCIATION, P.O. Box 4563, Anaheim, CA 92803. Subscription rate/membership fee is \$8.00 per year for U.S. residents and \$10.35 (U.S.) for persons in all other countries (dues subject to change). Information contained herein is primarily obtained from members and does not necessarily present the position or reflect the opinion of the RCMA as a whole. The RCMA Newsletter editors and officers are not responsible for the accuracy or validity of information contained herein. Material and comments presented in the "Monitoring and the Law" column are not to be construed as legal interpretations or legal advice. Reproduction of any material in this Newsletter is authorized providing the source (RCMA) and the address are given (this excludes direct photocopying).

## **\* \* Calendar \* \***

OCT 19 --- November Newsletter deadline.

OCT 19, FRIDAY, 8:00 PM --- Tour of the new CHP communications facility in Los Angeles on Vermont just South of the Hollywood Freeway. Best parking to rear in lot or on street.

NOV 6 --- If you would like to share in interesting conversation while affixing mailing labels to Newsletters and help make other preparations prior to mailing the Newsletter, meet at the Euclid Branch of the Anaheim Public Library (on Euclid South of Ball just South of the fire station). Starting time will be 6-6:30 PM. For info call Jerry, 772-1259.

### **Reports of Meetings and Officers**

The September Board Meeting Minutes will appear in the November issue since it occurred a week after the Newsletter deadline.

The Orange County, CA General Membership Meeting, held on September 21, was friendly and informal. There were about 30 people present. Each person in attendance introduced himself and spoke to one extent or another on his monitoring interests. Some presented questions, most of which were answered by other members. After the introductions and discussions, members stayed around for lively conversation and exchanges of information. It was a pleasant meeting.

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#### **SUMMARY OF TREASURER'S REPORT For Period Ending September 15, 1979**

|                                                         |           |            |
|---------------------------------------------------------|-----------|------------|
| Balance as of August 15, 1979                           |           | \$ 1083.88 |
| Received for membership:                                |           |            |
| New members (71)                                        | \$ 564.00 |            |
| Renewals (20)                                           | 160.00    | + 724.00   |
| Expenses:                                               |           |            |
| September Newsletter (printing, postage, etc.)          | \$ 638.14 |            |
| Rental of library room for preparing News1. for mailing | 25.00     |            |
| Officers' expenses                                      | 172.08    |            |
| Back issues (photocopies)                               | 124.24    |            |
| Miscellaneous                                           | 33.44     |            |
|                                                         |           | - 992.90   |
|                                                         | Balance   | \$ 814.98  |

For a detailed report send a self-addressed stamped envelope and one extra First Class postage stamp to: RCMA, P.O. Box 4693, Riverside, CA 92514.

# THE editor's column

Iden Rogers, P.O. Box 4693, Riverside, CA 92514

## NEWSLETTER EDITORS NEEDED --- HELP, HELP

Last month I mentioned that though I enjoy being the RCMA Newsletter Editor, it requires a lot of time. I want to discontinue my editorial responsibilities by the end of the year. The job could be done by two or three persons who are able to work together. This would reduce the workload to a reasonable level for all concerned. I have considered staying on as "Managing Editor" if I could get competent helpers to do most of the time-consuming work. I have my heart in this publication and I want to see it continue to grow and prosper. If you are reasonably intelligent, reliable and want to help out, please contact me soon.

## NEWSLETTERS ARRIVE LATE

For some reason many September Newsletters arrived late. They were printed and mailed on time and since so many members received them late, it appears that they were delayed at the Post Office where they were mailed. The matter will be brought to their attention.

## RCMA DIRECTORY OF "SOCIABLE" MEMBERS

It was proposed last month that an RCMA Membership Directory be compiled that contains only those persons who want to be listed and who actively want to communicate with other members thus reducing the size of the directory and making it of considerably more value. The directory would also only be sent to those who are listed in it. Since many Newsletters arrived late there was no time for members to express support for this concept. A report on the popularity of this directory concept will appear next time. If you are one who wants to be in such a directory and actively wants to communicate with other members, drop me a line just to let me know that you want it.

JOHN (IL-004) points out that RCMA and WTFDA (Worldwide TV-FM DX Association) had agreed to exchange ads for publication in our respective publications. It was reported that WTFDA has published the RCMA ad and that we have not published the WTFDA ad. As of this writing, I have not received advertising copy from WTFDA even after sending a follow-up letter. We are still willing to publish it when received.

From JAMES (CA-ST-001): I agree with Tony (NJ-005) in that members are apathetic, however I think much of the apathy is due to shyness or thinking that they do not know enough to say anything. Many of the letters and editors in RCMA show a great deal of background knowledge in scanning and in radios, etc.

(Editor's response: I feel this is so for a portion of the members. I know when I was new in some of the listening hobbies such as Broadcast Band DXing (540-1600 KHz), I felt quite reluctant to send in listening reports to a club publication because I didn't want to say anything stupid. The level of the publications were above me.

Now, I still belong to some other listening clubs, Longwave Club of America and SPEEDX, but only occasionally contribute to them due to lack of time but still enjoy reading the publications. I presume many of our members fall into this category with regard to the RCMA Newsletter.

There are also some members who don't like to write. It is a difficult and painful experience even to write one letter a year,

## THE editor's column (continued)

although these same people often can communicate very well verbally. For those of us who enjoy writing this is sometimes hard to understand.

Some members are lazy and/or selfish and want only to receive and are willing to offer nothing.

No matter what organization you pick there will only be a small percentage of truly active members. This is the way it always is and I don't think there is much we can do about it.

I have given some thought to starting a "Beginners' Corner" column for very basic questions and answers. This would be a serious column to serve a real need for those who just don't understand some of the things we talk about. If anyone wants to edit such a column, let me know.

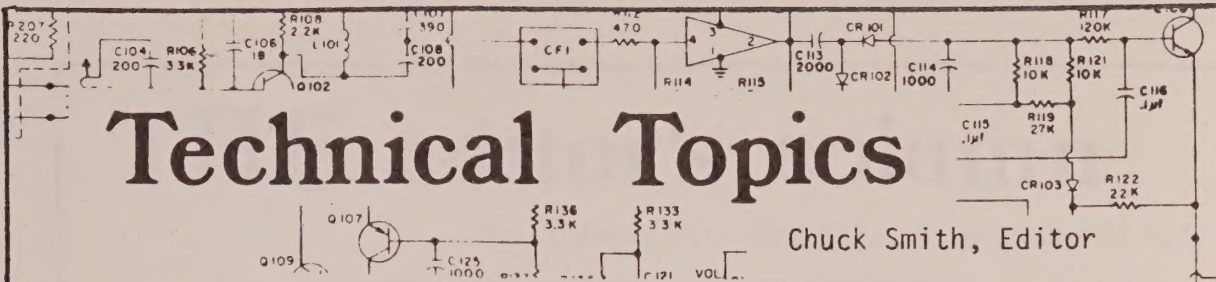
A serious note to those who are reluctant to write: If you do not understand something about monitoring that may be elementary, please write to the appropriate editor anyway. You can request that your name be withheld if you like. We were all uninformed beginners at one time.

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From MIKE (CA-RI-011): I want to express a concern that I've had. Perhaps you or one of the members can set me straight. I often have or discover frequency information that I feel would interest other members but I am reluctant to submit it. The reason? I feel somewhat cheated. Many members spend much time, some money and often frustration in finding frequencies, ascertaining their use and breaking down codes. To have this information printed in the Newsletter and sharing it with RCMA members is not where my concern lies - after all, we're paying \$8.00 per year for exactly that privilege. My concern lies in the fact that one of our members that receives this info is also a publisher of a magazine whose sole purpose is to sell this information. I feel that in essence that we are contributing this info to the club and this member may be using this info to turn a buck by improving his publication. We in turn must pay the full price for this publication each year for updated info. Basically, we're buying back info that was contributed by ourselves. I don't feel that the contributions of the members should be available to promote someone's business. For this reason I prefer to swap info mouth-to-mouth rather than sending it in for publication.

(Editor's reply: I too have had a similar concern but after thinking about it have come to feel differently. A person selling frequency lists would be smart to use information from the RCMA Newsletter and no doubt some do it, but is this all bad? I don't believe so. I feel that frequency information gained from the RCMA Newsletter will help to increase the size and improve the accuracy of these publications thus making them of more value to our fellow monitor listeners whether they are RCMA members or not. I would guess that you have purchased one or more frequency lists from commercial sources and probably appreciated every bit of information contained in them regardless of how it got into the publisher's hands. I doubt that you boycott them because they may contain some info of RCMA origin.

I don't know if you are by chance referring to Gene Hughes and his "Police Call, Southern California Detail Edition" or not but I feel very strongly that Gene Hughes has done a great service to monitor listeners for at least 14 years that I know of by publishing this publication. It certainly has made listening easier and more enjoyable for me. By his own admission he says he does it largely because he enjoys it, because he is a true monitor listener himself. Also, RCMA members should be very grateful to Gene for publicizing RCMA in the national "Police Call" directories. It has helped tremendously to bring the RCMA from a Southern California club to a truly national club. We are indebted to Gene and members should feel no qualms about sending frequency information directly to him to make his publication even better --- FOR US! This is how I feel about it.



# Technical Topics

Chuck Smith, Editor

Send all equipment reviews, technical articles, technical tips and questions on such subjects as receivers, antennas, preamps, accessory equipment, repeaters, links, tones, scramblers, non-voice data transmissions or even computer applications for monitoring to: Chuck Smith, 4901 Heil Ave., #3C, Huntington Beach, CA 92649.

Editor's note: I am pleased to report that Chuck will be able to continue as editor of the Technical Topics column. He recently had a change of employment and was doing consulting work on the side and is just now beginning to get settled down again. He does advise that it is always a good idea to have a backup editor so if any members would like to be a backup editor, please write.

The following was intended for the September issue but missed the deadline by a couple of days, so it is appearing in this issue instead.

In introducing the September issue of the RCMA Newsletter, I must first express my profound apologies for not having been included in the last issue. As is my usual custom, I found myself running late when approaching the deadline, my own problems of organization compounded by several business commitments which kept me out of town for much of the month, and when my manuscript was finally rushed off to Iden in a last-minute bid to make the printer's deadline, I was evidently victimized by the U.S. Postal Service, who somehow managed to salt the fruits of my labor away on some dusty shelf where it still must be to this very day. Perhaps in the far future, someone will come across a manila envelope containing the August RCMA Newsletter column, and it may be published as a history item. Well, for whatever reason, I must again tender my regrets for missing the last issue, and hopefully I can make up for some of the disappointment my fans must have felt (there's a little wishful thinking for you) by making the column this month bigger and more interesting than usual.

Lately I have been receiving more and more questions from the general membership, accompanied by self-addressed, stamped envelopes and a request for a personal reply to a question. As much as I would like to answer these questions individually, I am unable to do so. Considering my present schedule, I wonder how in blazes I find the time to sit down at this typewriter for a paltry few hours each month to pound out this column. In lieu of answering questions via the mail, I propose that I do so here in the Technical Topics column, where I hope the answer will prove interesting to more than just the original author of the question. I personally feel that most of the questions submitted to this column are of general interest, and that answering them in print will better serve the general membership than an individual reply. I hope that most of you will agree. The amount of mail that I have been receiving has increased significantly in the last several months, and most of the questions are sound and thought-provoking, so answering them here makes it much easier for me to fill out the column. Besides, if I didn't do that, I would have to ad-lib the entire column, and believe me, you don't want that!

## INTERMODULATION AGAIN

This subject may be getting worn a little thin, but I keep getting questions and other inquiries that prompt me to write on the subject. Recently I got a telephone call from TOM (OR-85) who was experiencing a bit of unusual reception

## TECHNICAL TOPICS (Cont.)

on the UHF band here in Orange County. It seems that while listening to the police BLUE channel--460.500 MHZ., he was experiencing some reception of the local paramedic dispatch frequency on 462.975 MHZ. As promised, I ran all of the pertinent numbers through my programmable calculator and was totally unable to explain the reason for this particular interaction. I can only assume that this was a classic example of intermodulation, wherein two actual transmissions will mix in the RF amplifier section of the radio to produce a response at some other frequency. It could very well have been that another transmission in the UHF section of the band, very strong, could have mixed with the transmission on 462.975 MHZ, resulting in a response at the IF frequency of 10.85 MHZ, which could have fed through the rest of the front end and been detected. This, however, would have resulted in reception of the interfering signal regardless of the frequency to which the receiver was tuned. These cases of intermodulation are often more complex than they first appear, and can sometimes involve mixing sources completely external to the radio itself. For example, I have heard several case histories in which two interfering signals were heterodyned together by the galvanic junction between two pieces of down-spout on a home!! Stranger things have happened, and tracking down the precise cause for these occurrences can sometimes be more difficult than taking the fingerprints from a ghost!

### HERE WE GO AGAIN DEPT.

From E.R. (ILL- ) comes a copy of Scanning with Bearcat, a publication evidently intended for distributors of Electra products. Culling through the obvious propaganda, I came upon a news release relative to the newest creation from Electra, the Bearcat 300. While this new product will no doubt appeal to those of you interested in even more bells and whistles than those which came with the Bearcat 250, I am somewhat saddened to see that scanner technology seems to be headed in the same direction that it was over a year ago. While I am sure that this new addition will whet the appetite of a lot of prospective scanner buyers, there simply MUST be some end to the sheer amount of electronic crud that can be stuffed into a single enclosure!! Add to this the price tag on this new one (a withering \$499.95) and I think this just may be the straw that breaks the camel's back. First deliveries of this one are scheduled for November of 1979, so save your nickles and dimes and you can be the first one on your block with a scanner that's smarter than you are!!

Features for the Bearcat 300 admittedly look impressive: sensitivity of 0.4 microvolts or better on high and low VHF, selectivity of better than -60 db down at +25 KHz, and an audio output of 2.5 watts RMS. New highlights for a Bearcat scanner include over 2,100 pre-programmed channels, no doubt burned into a handful of read-only memories, which can be scanned at will according to the particular service that you are interested in. Buttons on the front panel include selections for police, fire, marine, "hams", mobile phone, emergency (what's that?), government, forestry, business, ground transportation, and even aircraft. This particular feature reminds me a lot of the infamous K-500 from Regency. There are still 50 programmable scanning channels, just as in the BC-250, as are a lot of the other features, such as direct channel access, non-volatile memory, and so on, and so on, and so on.....Now, if only someone will explain to me why this is a better mousetrap.

### A SCARECROW FOR YOUR BIRDIES

JOHN (PA-019) wrote me a letter asking about the process used in the Bearcat 250 for the elimination of those nasty birdies we're all so very fond of. It seems that although they can be successfully dealt with when searching the band they come back when scanning in other functions. The main question was to decide whether or not this was a malfunction with the radio.

Well, in my most assuring tone, I will say that NO, it is not a problem with the radio. When using the recommended procedure for removing spurious responses from the radio, one removes the antenna, thus getting rid of all of

the bonafide signals, and then scans the band or portion in question. When a birdie is detected, the frequency of the birdie is then entered into the memory used for search and store frequencies. Thus, when scanning the band at a subsequent time, in the SEARCH mode, these frequencies will be eliminated from consideration. Unfortunately, the search and store memory is not used by the microprocessor when scanning the band in a normal manner, and thus the birdies cannot be "permanently" removed by using this method. It should be noted that using this method does not necessarily remove only birdies; it can be used to delete any group of undesired frequencies (up to 64 in number) from being scanned during the SEARCH procedure. The logic of the BC-250 doesn't really know the difference between a spurious response and a desired transmission, so if you want to keep on scanning some of those frequencies after you've found them, you can forget about using the search and store lockout.

JOHN also asked about procedures for getting rid of intermodulation products caused by the reception or interaction of TV broadcast stations. Well, there are a great many variables involved in any case involving intermodulation, and while this may seem like a cop-out, it is really quite difficult to postulate with any degree of accuracy about the precise cause without knowing a lot of additional information. For instance, living in the immediate vicinity of a television broadcasting antenna will probably generate a lot of problems for you, but at a reasonable distance of a couple of miles, these effects should drop off rapidly. In buildings with cable TV or community antennas, the distribution amplifiers which handle the incoming signal can become non-linear, thus acting like mixers and generating intermodulation products all over the place. In cases like these, however, the problem should be completely independent of the type of receiver used. In other words, if the cause of the problem is completely external, then even using a \$5,000 receiver wouldn't help. Most often, though, the cause or causes are not that easily defined, and are a result of a combination of related factors. As the frequency spectrum becomes more and more crowded with users of all types, this is a problem that will no doubt increase in severity, particularly in urban areas where the useage is the greatest. In cases like these, using even the highest grade of commercially available hard-line transmission line will not eliminate the problem.

#### THE UNIVERSAL ANTENNA?

I have received several questions in the past month or so regarding the selection of the "best" base antenna for scanner use. I wish this question was as easy to answer as it is to ask, but I'll do what I can. LARRY (VA- ) and RUSSELL (AR- ) both asked the same type of question, and the answer will to a large degree depend on your own particular set of circumstances.

First of all, I should mention that I am in no way prepared to endorse any manufacturer of antennas; rather, what I would propose to do is recommend the best type of antenna depending on the situation and let you, the end user of the product, do the actual process of selection. This allows me to give you the advice you need without sticking my neck too far out.

Of course, I strenuously endorse the use of external antennas to anyone seriously interested in monitor listening of any type whatsoever. The small extendable whip antennas included as standard equipment with today's scanning receiver is for the most part largely ineffective at receiving anything but the most local of transmissions. Once you have committed yourself to this, provided that an outdoor is feasible in your location, you must evaluate your listening tastes and habits. If you enjoy listening to stations which originate from all directions of the compass, then either an omni-directional antenna or a rotatable array is called for. If multiple transmissions on the same frequency can possibly come from conflicting directions, then the omni-directional antenna is really the only game in town. If, on the other hand, all or most of your listening comes from the same direction, or rotating a beam antenna array does not discourage you too much, then perhaps this would be the way to go. Any array

which favors a particular direction will, of course, exhibit superior performance in the direction that it is aimed, at the expense of the performance in all other directions. On the other hand, the omni-directional antenna, such as the common vertical ground-plane, delivers acceptably good results over all 360 degrees of the compass. Before deciding on any antenna, the decision must first be made regarding the type of antenna that you will need for your application.

Once you have decided on this question, I strongly recommend that you read all of the available literature on the type of antenna that you have decided to purchase, weighing such factors as cost, performance, frequency range, etc. An antenna designed to work only on the UHF band will probably work better in its frequency range than a tri-band or other multi-frequency array, but this won't help you a bit if you must monitor more than one band. Size of an antenna, particularly at the lower frequencies, may also be a factor if there are finicky neighbors that must be considered. Be aware, also, that antennas usually work better when elevated as high as possible and kept away from obstructions that could affect its performance. Don't select a huge, flimsy array if you live in an area which is known for ice storms or other such forms of extreme weather, because believe me, it won't stay up there for long if you do. Just ask the ham radio operator who has had his big triband quad torn down for the season by a sudden ice storm; it leaves a bad taste in your mouth and no great love for old Mother Nature.

#### tone ENCODED SQUELCH RE-VISITED

JOHN (MA-005) writes and asks for more detailed information relative to the installation of tone-encoded squelch circuits into existing scanner receivers. This feature is more easily added than most since the squelch action functions with the received audio rather than the carrier, quieting, or other such characteristic of the transmission. All of the circuitry is added AFTER the audio has been detected.

The usual tone-squelch circuit board will contain inputs for supply voltage, audio in, and audio out. All that needs to be done is to interrupt the path for the audio signal, either from the audio amplifier to the speaker or from the center wiper of the volume control, and insert it into the audio input of the tone squelch board. This second method is the preferred one since it does not alter the level of audio which is received by the squelch board. When in use, the squelch board will only allow audio to pass on to the audio amplifier and speaker when it detects the proper tone frequency superimposed on the audio from the station in question. This is the simplest and most effective application of the tone squelch board, but when used in this manner it is restricted to being used with all channels or none at all. A possible alternative might be to tap the control pins of the microprocessor which control another function, such as the auxiliary function (speaking specifically of the BC-250), and using this pin to control the use of the tone squelch feature. Many commercially available units are available which need only to be connected to the speaker output of the receiver and a suitable power source in order to function. If you don't wish to delve into the innards of your scanner, perhaps this is the most viable alternative.

Personally, I feel that the tone squelch question is best answered by using a device that is not only selectable relative to being used or not used, but also selectable in terms of the tone which is required to activate the unit. While this feature is by no means beyond the scope of the avid experimenter, I feel that it may best be implemented by the scanner manufacturer. In this way it may reach the broadest spectrum of users, without undue difficulty of implementation.

One small additional question proposed by JOHN is the use of a carrier operated relay to control the use of an external tape recorder. This could be done by connecting a transistorized switching circuit to the pin of the microprocessor which controls the squelch circuitry and stops the scanning action of the receiver when it detects an incoming signal. In this way, and incoming signal can be detected and the external tape recorder switched on. If this feature is

## TECHNICAL TOPICS (Cont.)

desired on some channels and not on others, as in the BC-250, more elaborate interconnection is necessary in order to switch this feature on and off as desired.

### LINE LEVEL METERING--IS IT REALLY NECESSARY??

A letter from BILL (MI- ) has raised a question not yet put forth, that being regarding the use of a line level meter with a scanner receiver. His specific question is two-fold: first, what use such a meter would serve, and secondly, how to implement it into an existing piece of equipment.

The answer to the first question may seem a bit tongue-in-cheek, but in all probability, you don't need a line level meter. These meters are used in cases where the receiver's audio output is used to feed an external circuit of some type, remote speakers, a telephone circuit, or the like. In cases such as these, it may be important to know the level of audio used to drive these external lines, and this is where the audio level meter comes in handy. Expensive commercial short-wave receivers such as the Collins receiver mentioned are often used to monitor time-signal stations such as WWV and feed the audio to speakers located in remote calibration laboratories within a large facility, and this is where these meters are useful.

Basically, these meters are connected across the audio output of the receiver. The audio signal, rectified by a diode and perhaps filtered by a large capacitor, is then used to drive a meter movement to indicate the relative amplitude of the audio signal. The meters are usually calibrated in terms of decibels, "0 db" representing an audio signal of 1.0 millivolt across a load impedance of 600 ohms. This sounds like a relatively complex definition, but is related back to an audio industry standard, so that readings taken from different pieces of equipment can be directly compared. Unless you have an unusual requirement for such a feature in a monitor receiver, it is best left out. However, if the feature is truly desired, it can be easily added by placing a meter across the audio output of the receiver, in series with a diode and in parallel with a capacitor of approximately 10 microfarads. Select a meter movement with sufficient sensitivity to read small levels, but not so much so as to pin the meter with average levels. In cases like this, it is best to experiment to find the best combination for your particular application.

### WHO HAS THIS CONVERTER?

This question goes out to the general membership, since I personally don't have the answer. BOB (NC-006) would like to know if anyone out there has a good idea on the design of a wide-band converter for the 225-400 MHZ aircraft band. Since digital monitoring has recently spread to the 108-136 MHZ aircraft area, he feels that these receivers can be used, along with a suitable converter, to allow this convenience on the higher frequencies as well.

Design of such a converter should not be unduly difficult. Techniques used for designing mixer circuits in the high VHF and low UHF areas of the spectrum can be applied here with relative ease. I have not done so, but I'm sure there are members in the field with specific interest in this area that may have done some experimentation. Interested parties can either respond to the Newsletter or directly to Bob via his address in the Military column heading.

### TOP-SECRET INFO DEPARTMENT

I received a letter from RANDY (OR-001), not be be confused with my own membership number here in Orange County, describing what he referred to as a "large problem" with Regency Electronics in obtaining some technical data on their add-on frequency synthesizer, model DFS-5K. This unit, as I understand it, plugs into the Whammo scanner and allows the user to dial up frequencies with some sort of keypad or digital switch. The exact question was for some technical information so that he could attempt to disable the circuit which detected when the user was

attempting to program in some out-of-band frequency. Regency, as is often the case, returned a brief form letter, indicating that the information was "not available", in other words, they didn't want to give it to him. I feel a bit frustrated myself in matters like these, since without such technical data, or at least a sample unit to examine, there is very little that I can do in the way of suggesting modifications. The thing that really gripes me is that no doubt the required information is gathered together somewhere at Regency Electronics, in the design engineer's drawing file, on some technician's workbench, or even on the restroom wall. "Unavailable" simply means that for some reason they don't want you to have the information, whether it be for patent reasons or what, I'm not sure. This jealous hoarding of data, particularly in cases where the patent rights have been adequately secured to protect the product from unauthorized duplication, seems to me to be an unnecessary case of overkill on the part of the manufacturer, and in fact would seem in the long run to be detrimental to the continued development of the state of the art. Interested parties, such as our friend RANDY here, simply want to make modifications and/or improvements to the product for their own benefit, and are certainly not out to rob anyone of their just and deserved profits. A spirit of mutual trust and cooperation between all of the scanner manufacturers, along with a little less paranoia, might just be the ticket that we need here.

IMPROVE YOUR REGENCY SCANNER

If you have ever tried to monitor weak mobile signals with your Regency scanner, you probably found that the squelch circuit operated erratically, chopping the audio on and off as the signal varied. In fact, the same effect can be observed with no signal present. Just set the squelch control at threshold and notice how the audio chops in and out. This occurs because the squelch circuit consists of a high-gain amplifier/switch having no feedback. A small amount of positive feedback may be added by connecting a 270K-ohm resistor from the base of Q118 to the collector of Q119. This modification will add enough hysteresis to the squelch circuit to assure a well defined threshold point. Note the placement of the resistor in the schematic and PC board layout. In actually mounting the resistor, it will be most convenient to simply solder it to the bottom of the PC board.

The modification was successfully implemented on a Regency ACT-R10H/L/U, but it can be applied to many other Regency models as well. Some of the units using the same squelch circuit include the ACT-W10, ACT-M8 series, ACT-R8, ACT-E10, ACT-P1, TME-8 series, all TMR series, TME-16 series, MT-15S, R1 series, and R2 series.

Another helpful modification, this time to increase selectivity of the IF stage, involves simply replacing the 455KHZ ceramic filter with a precision filter. Referring to the PC board layout for the ACT-R10, locate CF-101 on the left side of the board about halfway up from the bottom. Notice that on either side of CF-101 there is an extra pair of unused holes in the PC board. Regency has thoughtfully provided a board which will accept both economy or precision filter types. The table below shows a comparison of several filters which may be used for CF-101.

| TYPE     | -3 DB BW | -6 DB BW | -50 DB BW | -70 DB BW | IN/OUT IMP | LOSS | SPUR REJ |
|----------|----------|----------|-----------|-----------|------------|------|----------|
| CFM-455E | 5.5 KHZ  | 8 KHZ    | 16 KHZ    | -         | 1500 ohm   | 6 db | -30 db   |
| CFS-455E | 5.5 KHZ  | 8 KHZ    | -         | 15 KHZ    | 1500 ohm   | 8 db | -60 db   |
| CFS-455F | 4.2 KHZ  | 6 KHZ    | -         | 12 KHZ    | 2000 ohm   | 8 db | -60 db   |

The CFM-455E type is similar to the filter Regency supplies with each scanner. The CFS-455E offers more than 20 db additional selectivity while retaining the same passband. Note also the greatly improved spurious response specification. The additional 2 db insertion loss should not be a concern as it is made

up by the high gain of the IF amplifier. The CFS-455F filter offers even greater selectivity but begins to introduce problems such as higher recovered audio distortion.

Replacing the ceramic filter in your scanner will only be beneficial if there are strong stations on adjacent channels which interfere with each other. Even at that, you must decide if the rather high price (about \$25 when I replaced my filter in 1976) is worth it. For further information and current prices, contact Murata Corporation of America, 1148 Franklin Rd S.E., Marietta, Georgia 30067. The filter change can be accomplished on all the models listed above in the squelch modification writeup except the ACT-W10 and early TMR series radios.

--BILL (KY- )

Thanks, BILL, for this interesting and timely article. I'm sure that it will interest many of our members who are using these models of Regency scanner. --ED.

#### CONVERTER, ANYONE??

Follwing is an interesting article that has been a long time coming, and answers an often-asked question from the RCMA membership--that being how to build a converter for the new 900-MHZ area of the spectrum recently opened up for use by public service agencies. From BILL (IN-004) comes a possible answer for you.

Until the manufacturers come out with a reliable receiver for the new 890 MHZ band, there are a couple of ways by which we may "jump the gun" and start receiving the activity there. I won't go into details at length as to converting a UHF-TV converter, other than to say that with a 9-volt battery and a good vernier dial, these small transistorized units should work well driving an FM broadcast receiver for the IF.

The simple tube-type crystal-controlled converter described here can be built cheaply and quickly by anyone who has ever soldered together an electronic project, and should provide reasonably stable reception of 800-MHZ stations. Since the converter is crystal-controlled, we tune the band covered by tuning the IF strip-which in this case is a high-band (150 MHZ) receiver covering 146 to 174 MHZ. Tuning 146 to 174 MHZ would give us 876 to 904 MHZ, as the local oscillator is 730 MHZ.

We achieve a 730 MHZ LO signal by using a 27.035 MHZ Citizen's Band transmit crystal-the cheapest kind; (Channel 7) the oscillator is the same circuit used in most tube-type CB transmitters; the other half of the tube triples to 81 MHZ, the second 12AT7 triples again to 243 MHZ, and the last half of that tube triples again to 730 MHZ. The 730 MHZ signal is link-coupled to the cathode of the mixer, and the RF amplifier is capacity coupled to the grid of the mixer. The plate of the mixer is broadly tuned to 150 MHZ and capacitively coupled to the IF receiver.

A similar unit could be built with solid-state components, but at these frequencies transistors have to be hand-picked and reliable test equipment and a well-equipped service bench area are a must. For most people, tubes make the job easier. I will now describe how to build the creature.

It will be noticed that I did not include a schematic of a power supply; just to build this thing and try it, if you're a typical experimenter, you will probably have a supply from which you can "steal" voltages on the order of 6.3 VAC at 0.9 amp, and 150 to 250 VDC at 30 ma. If you wish to build the power supply integral to the unit, you'd better allow more chassis room; otherwise a chassis about 4 x 6 or 5 x 7 inches should be roomy enough. It is suggested that you use a galvanized steel chassis, or a piece of copper sheet or copper PC board for the chassis, as not-to-bolt connections tend to be unreliable at VHF frequencies. Solder all ground connections!!

Start by mounting the four tube sockets in a square block, each toward a corner, about 1½ inches out from the center of the chassis. Drill ¼ inch holes

near the sockets for the slug-tuned coils, and drill for and mount a crystal socket near the first 12AT7 (unless you want to solder it to the socket pins under the chassis). Also drill 1/8th inch holes for the ceramic trimmers. Mount the input and output coax connectors on the plate or chassis nearest the 7-pin miniature sockets.

Use #22 solid plastic insulated hook-up wire for all point-to-point wiring. Wire the filaments first, and as you wire the filaments of the mixer and RF amp, wind the hook-up wire into a 7-turn choke (or leave the wire straight and put a ferrite bead on it) for each filament.

The tube socket rings, grid resistors, bypass capacitors, all should be soldered directly to chassis ground at the closest possible spot, the only leads over 1/2 inch long should be the heater and B+ wires and the antenna and IF output leads. Inductors L3, L4, and L7 must be tied directly to the tube socket pins. Terminal strips, support posts, or solder-in or screw-in bypass capacitors may be used for supports for B+ points.

I did not include test points, inasmuch as each grid may be metered directly with a VTVM to tune the previous stage plate coil. By the time you get the 243 MHZ coil tuned up, you should be able to hear local activity--if there is any.

After you find a signal (you might try birdies from your TV UHF dial, or a harmonic from your HAM rig--6 times 146.52 is 878.72 MHZ) then L5, L6, and L7 can be peaked up.

RFC1 and RFC2 are also wound from the hook-up wire, and are not critical. Due to the extremely broad range of the UHF coils, their wire size, diameter, and shape are not terribly critical; L3 and L4 may be #16 or #14 tinned copper wire, and L6 and L7 may be 1 1/2 inch lengths of 1/4 inch copper foil or even tin can material!

Some parting comments from BILL: I don't suggest it as a construction project for a neophyte. If the schematic and layout fails to make sense to the reader, it is probably beyond him. If a person has and can use a frequency counter, grid dip meter, and a UHF signal generator, then he should be able to consummate the converter. Parts should be no problem--most can be scrounged from old TV sets, two-way radios, etc. The piston trimmers can be haggled out of TV tuners.

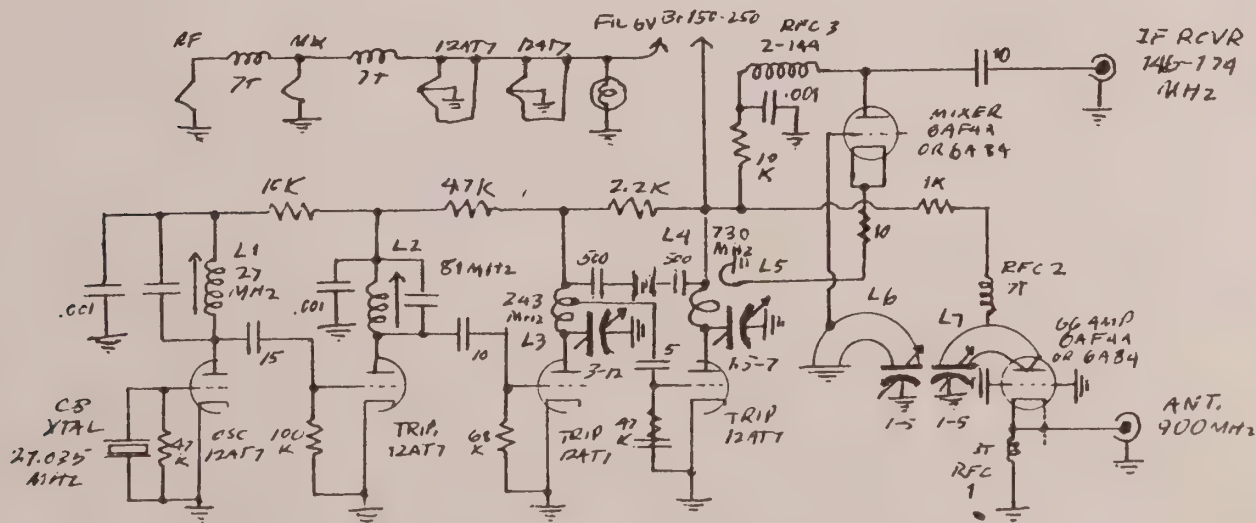
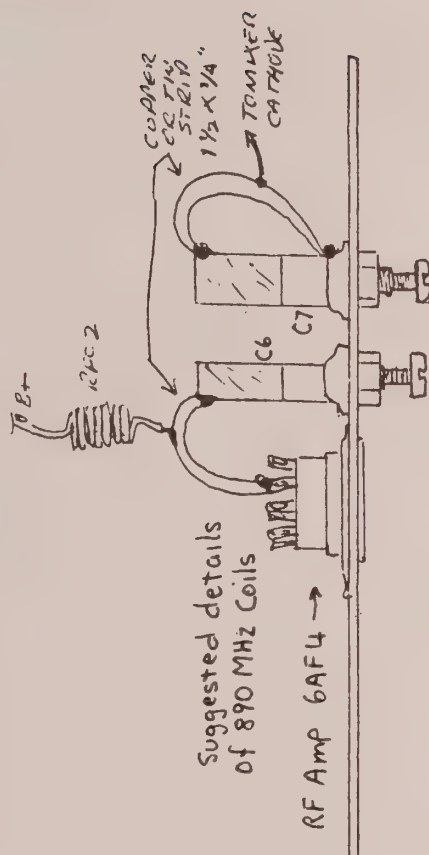
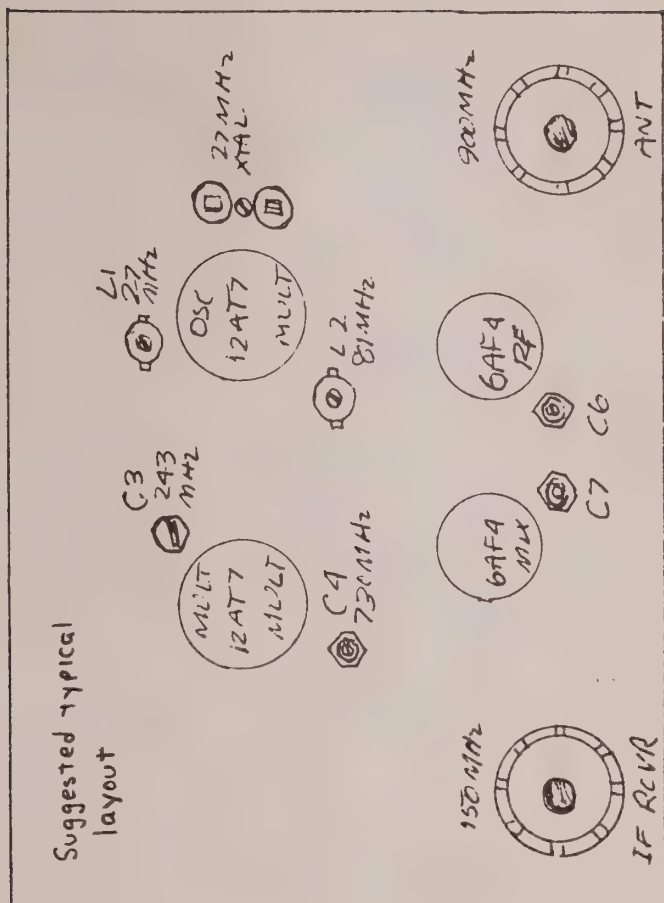
Regarding an antenna: a 4" piece of welding rod should hear as well as a higher antenna with its attendant feedline loss! RG-213/U isn't a good feedline at 890 MHZ, and RG58 is totally out of the question. The IF receiver should be somewhat broad, especially if tunable; a super-selective receiver would make tuning in signals somewhat difficult. It seems to drift excessively, check to see that the oscillator plate voltage is 100 volts or less, and possible try another CB crystal. They can sometimes be off-frequency or unstable. I am still building mine; I'd be interested to know if someone else gets one to work.

BILL (IN-004)

#### CONVERTER PARTS LIST

|   |                                                                      |   |                       |
|---|----------------------------------------------------------------------|---|-----------------------|
| 1 | 3-turn open-air coil, 1/4" diameter, spaced wire dia. #16 or #14     |   |                       |
| 1 | 1 1/2-turn open-air coil, 1/2" diameter, spaced wire dia. #16 or #14 |   |                       |
| 1 | 3 to 12 Pf. Ceramic trimmer (CRL type)                               |   |                       |
| 1 | 1.5 to 7 Pf. ceramic trimmer (may be piston type)                    |   |                       |
| 2 | 1 to 5 Pf. piston-type trimmers                                      | 2 | 47Kohm 1/2W resistors |
| 4 | 0.001 uF. disc capacitors                                            | 1 | 100Kohm 1/2W resistor |
| 2 | 470-500 Pf. disc capacitors                                          | 2 | 10Kohm 1/2W resistors |
| 2 | 10 Pf. disc or mica capacitors                                       | 1 | 4.7Kohm 1/2W resistor |
| 1 | 15 Pf. disc or mica capacitor                                        | 1 | 2.2Kohm 1/2W resistor |
| 1 | 4.7 to 5 Pf. disc or mica capacitor                                  | 1 | 1 Kohm 1/2W resistor  |
| 2 | 9-pin miniature mica-filled tube sockets                             | 1 | 68Kohm 1/2W resistor  |
| 2 | 7-pin miniature mica-filled tube sockets                             | 1 | 10 ohm 1/2W resistor  |
| 1 | Crystal socket                                                       |   |                       |
| 1 | Channel 7 (27.035 MHZ) CB Transmit crystal                           |   |                       |
| 1 | Slug-tuned CB coil, 10-13 turns on 1/4" form                         |   |                       |
| 1 | Slug-tuned coil, 81 MHZ, 4 to 5 turns on 1/4" form                   |   |                       |

## Technical Topics (cont.)



From DENNIS (OH- ): I am especially interested in modifications to the BC-250. I have a modification which will double the memory to 100 channels.

(Editor's note: I have asked Dennis if he will supply the info for this modification to the Newsletter.)



# SATELLITES



Bill Blomgren & John Coker, Editors

Send information about satellite frequencies which you have received with type of traffic heard, orbital data, hobby receiving equipment and antennas and questions pertaining to satellite monitoring to:  
Bill Blomgren, 505 E. Mulberry, #3, Normal, IL 61761.

As we indicated in our last column we will be discussing how to monitor voice transmissions from the NASA ATS-1 and ATS-3 satellites. On December 7, 1966, NASA launched its first in a series of six applications technology satellites (ATS). The mission of the ATS satellite series was to perform experiments to advance the fields of spacecraft communications, meteorology, and control technology. Each satellite had an operational life expectancy of 5 years and each satellite was designed around a specific package of experiments. Once these experiments were completed, the satellites could then be used for other projects.

Of the six ATS satellites only ATS-1 and ATS-3 are currently being used on a daily basis for voice transmissions. Both the ATS-2 and ATS-4 satellites are no longer in orbit and ATS-5 and ATS-6 are currently shut down. As was mentioned earlier, all of the ATS series satellites were designed around a 5 year life cycle. Both ATS-1 and ATS-3 are well into their third life cycle and as such their days are numbered. To the best of our knowledge these two satellites represent the last of the VHF highband voice satellites. Their death or shutdown may signal the end of satellite voice transmissions in the 135-138 MHz range. (Note: If any RCMA members are aware of voice signals currently in use in the VHF range other than ATS-1, ATS-3 and OSCAR, please let us know.)

## Operating Frequencies

Both ATS-1 and ATS-3 have identical transponder frequency ranges. These transponders operate in much the same way as a carrier squelch repeater. Each transponder has an input frequency (uplink) and an output frequency (downlink). Like a repeater these transponders will repeat everything that is heard on the input or uplink. Both satellites have a pass band of 100 KHz. This means that their input and output frequency range is 100 KHz wide. The uplink center frequency for ATS-1 and ATS-3 is 149.200 MHz  $\pm$  50 KHz. The downlink center frequency is 135.600 MHz  $\pm$  50 KHz.

Under certain circumstances it is possible to access both ATS-1 and ATS-3 at the same time. For this reason NASA has divided the 100 KHz of transponder spectrum into 5 primary operating channels. One channel is assigned to each satellite for routine operations and the remaining 3 channels are allocated for other uses. This was done in an attempt to reduce interference between the two satellites. While most narrow band FM voice traffic can be found on channels 2 and 3, the other channels may also be active from time to time. In fact, any earth signal between 149.170 MHz and 149.270 MHz with sufficient power to reach the satellites transponder will be repeated back to earth between 135.550 MHz and 135.650 MHz.

## How to receive the satellites

Most voice transmissions from ATS-1 and ATS-3 are narrow band FM. For this reason any narrow band FM receiver or converter that will operate between 135.550 MHz and 135.650 MHz can be used to receive these satellites. Depending on the type of receiver or converter you use you may also need a preamp between your antenna and radio. If you intend to use a scanner with

## Satellites (continued)

a direct frequency readout such as BC210, we would suggest that you use a 100 MHz down converter. This type of converter will convert the 135-138 MHz band down 100 MHz to 35-38 MHz. This will greatly simplify the entry and readout of frequencies. In fact, you can program in the entire 100 KHz passband of ATS-1 and ATS-3 by entering 35.550 MHz to 35.650 MHz. This will also allow you to search for other satellite frequencies in other parts of the 135-138 MHz range and have a direct frequency readout (less 100 MHz).

| CHANNEL BREAKDOWN FOR ATS-1 and ATS-3 |         |          |                |
|---------------------------------------|---------|----------|----------------|
| Channel                               | Uplink  | Downlink | Use            |
| 1                                     | 149.175 | 135.550  | ATS-3<br>ATS-1 |
| 2                                     | 149.195 | 135.575  |                |
| 3                                     | 149.220 | 135.600  |                |
| 4                                     | 149.245 | 135.625  |                |
| 5                                     | 149.265 | 135.645  |                |

### Where to get a converter

Any company which produces a converter for the 144-146 MHz amateur band with a 28-30 MHz output can usually modify their converter to meet your needs. These modified converters usually cost around 100 dollars and take about 6 weeks to build. When you order a converter be sure to specify a frequency range of 135-138 MHz and an output range or IF output of 35-38 MHz. If an output range of 35-38 MHz is not practical for your needs then ask the manufacture what other ranges he can supply. Two of the companies that have indicated that they can produce converters in this range and have been cooperative in supplying information on their products are Hermes Research and Development Company, 3997 Elkcarn Boulevard, Southeast, St. Petersburg, Florida, 33705, phone number (813)823-1032 and Janel Labs, 33890 Eastgate Circle, Corvallis, Oregon, 97330, phone number (503)757-1134. Another company called Vanguard Labs also indicates that they can build this type of converter but after calling them 3 different times and being promised product information each time, I have yet to receive anything. For this reason I would avoid Vanguard Labs.

### How to locate the satellites

Both ATS-1 and ATS-3 are geostationary satellites. This means that the satellites are located over the equator at about 23,000 miles where they orbit the earth once every 24 hours. Since the satellites orbit the earth in the same direction and at the same speed as the earth's rotation the satellites appear to hover in the same spot at all times (geostationary). To locate a geostationary satellite you simply determine at what point on the equator the satellite is located and how many degrees the satellite is above your location in reference to the horizon. Once you have located this spot you simply point your antenna toward the satellite and leave it there. (Note: In some cases, satellites can be received with an OMNI antenna but a beam is usually preferable.) The ATS-1 satellite is located over the Pacific Ocean above the equator at 149° west. The ATS-3 satellite is located above the equator at 105° west. If the satellite is more than 5000 surface miles from your location you will normally not be able to hear it.

### What you can hear

Once you have located the satellite's position and have oriented your antenna and turned on your converter what will you hear? If a signal is not present on the satellite's uplink then the satellite will be dead and you will hear nothing. If an uplink signal is present and narrow band

## Satellites (continued)

you should hear a conversation much like that from a standard repeater. Since a number of universities use ATS-1 and ATS-3 you may hear them communicating with their ocean research vessels or polar research bases. Transmissions are usually of a business nature, however, you may hear some phone patch traffic or occasional military traffic when conditions are such that military skip reaches the uplink of the satellites. Certain government agencies like the National Weather Service and some medical facilities also use these satellites for both voice and data relays.

Next month we will explain the difference between geostationary satellites and polar satellites. We will also show you a simple way to pinpoint where your antenna should be aimed to monitor a geostationary satellite.

### Editor's Note:

If you as RCMA members would like to see a specific topic covered in the satellite column or if you would like to submit information for use in the column feel free to write us. We can use any and all information. We also would like to offer our special thanks to Joe Novak (VA-004) for his assistance with this month's article and to Bob Grove (NC-006) for his contributions of information to the satellite column. To Robert (FL-012) and Jan (FL-010) we offer our apologies. Due to some unfortunate address mix-ups we did not receive your letters in time for last month's column. We have now corrected this situation and would like to thank you for your information and indulgence.

Robert (FL-012) and Jan (FL-010) report that the following GOES uplinks are in use throughout southern Florida for weather data.

|          |                          |
|----------|--------------------------|
| 401.7039 | Interior Department/USGS |
| 401.7520 | Army Core of Engineers   |
| 401.7820 | Army Core of Engineers   |
| 401.8630 | National Weather Service |
| 401.8855 | National Weather Service |

Robert (FL-012) and Jan (FL-010) also indicate that the Department of Commerce/NOAA Lab on Virginia Key in Miami is using ATS channel #2 (149.195-135.575) to transmit both voice and data through the ATS-3 satellite. Voice transmissions occur daily between 8-9 a.m. EST and 1-2p.m. EST. They also confirm receiving telemetry transmissions on 150.000 MHz in the Miami area and list the following frequencies that are associated with satellite and aerospace production. These channels are in use in southern Florida according to Robert and Jan.

|            |                                                             |
|------------|-------------------------------------------------------------|
| 34.100 MHz | Grumman Aerospace                                           |
| 36.900 MHz | United Technologies, Pratt & Whitney, and Sikorsky Aircraft |
| 38.900 MHz | Grumman Aerospace                                           |
| 46.900 MHz | Grumman Aerospace                                           |
| 49.650 MHz | Grumman Aerospace                                           |

Bob (KS-001) reports that on August 27, 1979, at 0410 GMT he monitored telemetry on 150.000 MHz. Bob States that he could hear telemetry for 8-10 minutes on 149.988-150.000 MHz. Bob also states that the best signal was received on 150.005 MHz with his Bearcat 210 radio.

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# FCC TOPICS

George DuBois, Editor

Send FCC news and information of interest that relates to two-way communications above 30 MHz and questions regarding the FCC Rules and Regulations to: George DuBois, 10048 NE Campaign, Portland, OR 97220.

Well, gang, I guess I'll do like the other editors did and start this column next month. This will be a brief introduction to let you know what I'll be covering.

First, each month we'll deal with a specific service, police, business, special emergency, what-have-you. I'll list the available frequencies and their uses. Specific details and limitations will be discussed. The technical standards will be detailed. As we progress, rather than store this information in your stack of past issues, my suggestion is to make up your own spectrum chart like I did years ago. This enables you to locate a specific service very easily. Or a discrete frequency can be found, to learn what service it is.

I used standard metric graph paper. You can use the English measurement size, if you want. It's spaced larger, so you'll need more pages, but you have room to list your local services on the same line. On the left-hand side list the frequencies the length of the page. You might want to write all six digits every five lines and just the last three in between. You can copy the frequencies from the allocation table in Police Call (which is copied from the Industrial Communications Emergency Plan, including the abbreviations). Or drop me a SSAE and I'll send instructions. We'll put a line on each channel allocated in each service. You can put most services in the first three or four columns as we go, instead of spacing them out across the page, since few services will cover more than a couple consecutive pages.

Or, you can use a notebook, listing the frequencies by service, noting your local activities next to channels active in your area. As far as T-band goes, I'll usually only give channel 14 and you'll have to add the appropriate number of channels for your city, which I'll indicate. When we're done, you won't tune across 48.3, say, and wonder what you're listening to.

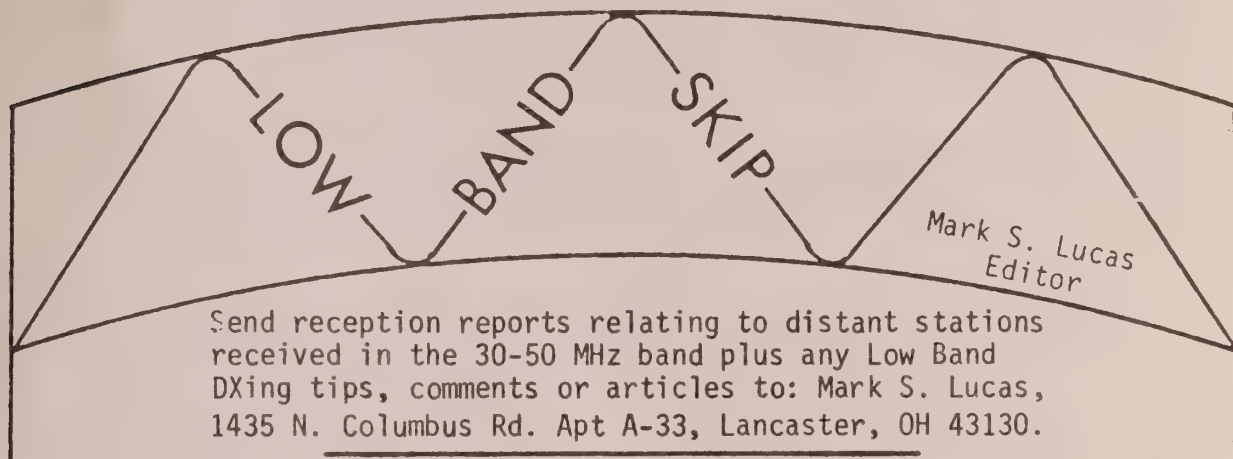
There'll be a question and answer section. Examples of questions I can answer are: "What are the power limits in the police radio service?" or "The pizza delivery joint we always call is on VHF, that's all I know. Where should I search to find them, so I can head for the door and my wife for the beer when we hear them coming?" Questions I can't answer are: "What frequency is the Clam Gulch dog-catcher on?" or "What's on 154.92 in Bangor, Maine?"

And there will be a comments section covering FCC dockets and rulings, how to gain access to FCC information and probably a few editorial comments on our government in action.

I don't want to give the impression this is all going to be technical/legal-type information. It's information we can all use. Nor is it just for persons with programable scanners. All monitor enthusiasts should have a tunable receiver, probably the one you got started with. I'm just going to tell you about the wide range of services your scanner can listen in on, besides the police and fire. I get the feeling there's sort of a fringe group, not fanatical listeners like some of us, but people with one crystal scanner, who joined the RCMA to learn more. These are the people who can benefit from this information, as well as the pro with the penchant for detail.

Next month, for no particular reason, we'll start with Part 90.33, the Special Emergency Radio Service.

73, *gpc*



Response is extremely good to date. I hope all will send at least ONE item so this column will be one of the best columns in the RCMA newsletter. F2 skip, if it develops, may also be a determining factor for your contributions. So, on to our wonderful contributors for this month.

FROM TOM (MD-008): 43.26 MHz "Seattle Mobile" Telephone mobile Bearcat-210 2-21-79 2:30P.M. EST Seattle, WA 2350 miles  
35.38 MHz "Los Angeles Mobile" Telephone base Bearcat-210 2-21-79 3:00P.M. EDT Los Angeles, CA 2250 miles  
45.10 MHz KMA-438 Police base Bearcat-210 2-10-79 1:00P.M. EST San Francisco, CA 2250 miles  
46.06 MHz KMD-639 Fire base Bearcat-210 2-10-79 1:10P.M. EST Santa Ana, CA 2250 miles  
46.46 MHz KMA-526 Fire base(?) Bearcat-210 2-10-79 1:30P.M. EST San Francisco, CA 2400 miles  
45.78 MHz KFD-601 Police base Bearcat-210 2-10-79 1:50P.M. EST San Mateo, CA 2400 miles  
45.10 MHz KMA-438 "KMA-438" Police base/mobile Bearcat-210 2-10-79 1130 A.M. EST San Francisco 2250 miles  
45.32 MHz KBI-880 Police base/mobile Bearcat-210 2-10-79 1:30P.M. EST McMinnville, OR 2350 miles

FROM BILL (MD-005): 33.94 MHz KKV-200 "KKV-200" Fire base Regency Whammo-10 8-22-79 1659 EST Jefferson Parish, LA 1025 miles  
33.98 MHz KDN-994 "Milan Fire" Fire base Regency Whammo-10 8-21-79 1900 EST Milan, Tennessee 710 Miles  
33.90 MHz NO CALL NO ID Fire base/mobile Regency Whammo-10 8-2-79 1910 EST Nashville, Tenn 575 Miles  
33.90 MHz KQL-316 "Hamilton, Co." Fire

# LOW BAND SKIP (CONTINUED)

Base/mobile Whammo-10 8-2-79 1910 EST Cincinnati, Ohio area 425 miles  
33.94 MHz KDS-620 "KDS-620" Fire Base  
Regency Whammo-10 8-2-79 1920 EST Clermont County, Ohio 475 miles  
33.82 MHz KFB-852 "Mariemont Life Squad" Fire  
Base Whammo-10 8-21-79 1800 EDT Cincinnati, Ohio area 425 miles  
33.70 MHz KBQ-781 "KBQ-781" Fire Base/Mobile  
Regency Whammo-10 8-21-79 1934 EDT Tama County, Iowa 850 miles

FROM JOHN (IL-012): Frequency pairs for North Carolina State Patrol  
not listed in Vol.6 of "Police Call." Date 8-15-79 from 0645-0715 CDT:

| Base to Car/Car to Car | Car to Base |
|------------------------|-------------|
| 42.52 MHz              | 42.80 MHz   |
| 42.60 MHz              | 42.66 MHz   |
| 42.62 MHz              | 42.78 MHz   |
| 42.64 MHz              | 42.76 MHz   |

FROM EDDIE (NY-041): 154.43 MHz "East Freehold" Fire Base  
Regency Touch 6-13-79 0105 EDT Freehold, N.Y. 50 miles  
(Editor's Comment: If VHF-HIGH is to be included I would appreciate those  
of OVER 50 miles range.)

FROM DON (MD-007): 37.22 MHz KIA-233 "Berry Hill PD" Police  
Base/mobile BC-210 8-14-79 2250 EDT Berry Hill, TN  
37.24 MHz KKK-489 "Lawrence County" Sheriff  
Base/mobile BC-210 8-14-79 2327 EDT Walnut Ridge, ARK.  
42.60 MHz KSA-775 "Macomb" State Police  
Base/mobile BC-210 8-14-79 2221 EDT Macomb, ILL.  
45.06 MHz KIB-487 "Tampa FHP" Highway Patrol  
Base BC-210 8-15-79 1002 EDT Tampa, FLA  
(Mobiles were received on 44.90 MHz)  
42.56 MHz KSB-235 "Maryville" State Police  
Base BC-210 8-14-79 2220 EDT Maryville, ILL  
37.24 MHz KKO-442 "KKO-442" Sheriff  
Base BC-210 8-14-79 2326 EDT Ozark, ARK

FROM RICK (CAN-002): Don (CO-002) wanted to know about a Spanish  
station on 35.46 MHz.

A station located in Camaguey, Cuba works this freq. Call is CMRC and  
run 80 watts and has been heard in Vancouver at times.

## RADIO RESEARCH GROUP HELPS OUT RCMA "LOW BAND SKIP"

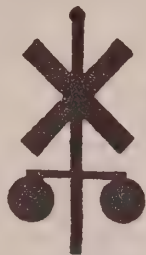
A sample copy of the RCMA August issue has been given to us. We note  
the comment on "KBJ-509" submitted by Chris. Our files show that KBJ-509 is:  
Howell Plumbing Co., 503C Street, St. Albans, W.VA. operating on  
42.96 MHz.

While it IS possible that Chris heard a repeater station on 37.12 MHz  
it appears that not many are licensed on that frequency. And it appears  
that he had the callsign in error. Therefore, without any further data, it  
is impossible to make an identification.

(Editor's Note: RCMA members may want to take advantage of Radio Research  
Group's special services. On a TIME AVAILABLE basis they can research  
many such stations for \$2.00 each plus a SASE (Self Address Stamped  
Envelope.) If the listing is not found, the money will be refunded.)

That's it for this month. Excuse some of the unusual "sloppiness"  
this month, as I have just moved into an apartment and am in between unpack-  
ing and typing. My new location may unfortunately cramp my listening habits  
quite a bit. No outside antenna!

PLEASE NOTE THE NEW ADDRESS: 1435 N. Columbus Rd. APT A-33,  
Lancaster, Ohio 43130. "Low band Skip" logging sheets can be had at that  
new address for a SASE and quantity needed.



# Railroads

Marvin Suggs, Jr., Editor

Send information about railroad frequencies and their uses, radio system details, tips for monitoring railroads, explanations of railroad jargon and related information and questions to: Marvin Suggs, Jr., 1946 Carolina Ave., Port Arthur, TX 77640.

Well, here goes my second month as editor for the Railroads column. It is really a pleasure to be a member of the RCMA staff.

This month I will try to define some of the terms heard on the railroad frequencies.

CTC, or otherwise known as Centralized Traffic Control, is a traffic control system whereby train movements are directed through remote control of switches and signals by electricity from a single central control point where the operator sees the track in miniature before him on the CTC control panel. The CTC operator uses radio to communicate with trains entering the yard. Radio also provides communication between the front and rear ends of trains, between trains, and between trains and wayside stations. Radio in yard and terminal operations includes the use of portable 2-way radio-telephones by ground personnel and radio communication between offices and locomotives.

Another term frequently heard on railroad radio is "block" or "block signal". Fixed or wayside signals along the track are called block signals because they divide the railroad into sections or "blocks" and are so spaced that trains will run a safe distance apart from each other. The basis of the block system is an electric current flowing through the rails. When all switches are closed, and no train or other obstruction is in the block, the signal shows clear. When a train enters the block, its wheels and axles short-circuit the current, and the signal changes to "stop". This is really a far cry from the late 1800's when all engineers had to rely on were timetables and telegraph.

One other interesting thing about railroad communications is their use of microwave. On the larger railroads, such as Southern Pacific, microwave has almost entirely replaced the use of telegraph. In the Houston, Texas area there are two frequencies, 160.68 and 160.80, that are direct links to Southern Pacific's microwave system. On these frequencies communications between locomotives and SP's executive offices in San Francisco can be heard. These conversations can be interesting at times.

From Bryan Hunnell, Costa Mesa, Ca.: The following frequencies are in use by the Union Pacific Railroad Co.: 160.74, which is a track frequency, 160.68, 161.025, which is a maintenance channel, 160.29 and 161.52 which are PBX (microwave) frequencies. 160.29 is the output frequency and 161.52 being the input frequency. Also, Southern Pacific uses 161.55 as a track frequency, 160.95 and 160.89 as PBX frequencies.

Bryan also said that the Atchison, Topeka & Santa Fe Railroad uses the following frequencies: 160.65, 160.335, 160.26, and 160.245. 161.19 is the track frequency for the Norfolk & Western Railroad, 161.61 is the Rock Island Lines main track frequency and the Fort Worth & Denver Railroad uses 161.10 for their track frequency.

(Editor's comments: I really wanted to express my thanks to Bryan for calling me long distance and providing me with this information.)

Guess that's all for now. See ya next month!

From MIKE (ID-001):

|               |             |    |         |
|---------------|-------------|----|---------|
| Union Pacific | South Idaho | BM | 160.680 |
| "             | "           | BM | 160.740 |



# Aircraft



Send private, commercial, firefighting and law enforcement aircraft frequencies of interest in the 108-136 MHz range and frequencies in other bands associated with airports and aircraft plus questions, articles and tips related to aircraft monitoring to: Mark Holmes, 1601 W. Maplewood, Marion, IL 62959. Please send all military aircraft frequencies and info to the "MILITARY" column.

Editor's note: As you can see from the heading, there has been a change in editor's for the "Aircraft" column. Wayne's efforts have been appreciated and since he is an FAA employee it is hoped that he can continue to contribute to the column in areas where he has a certain expertise. The column this month is Wayne's and Mark's will begin with the November issue. IBR

## INSTRUMENT LANDING SYSTEM(ILS)

The Instrument Landing System is designed to provide an approach path for exact alignment and descent of an aircraft on final approach to a runway.

The ground equipment consists of two highly directional transmitting systems along the approach, and 3 (or less) marker beacons. The directional transmitters are known as the localizer and glide slope transmitters.

### LOCALIZER

The localizer transmitter, operating on one of twenty ILS channels withing the range of 108.1 MHz and 111.9 MHz (on odd 10ths to preclude interference with VORS) emits signals which provide the pilot with course guidance to the runway centerline.

The approach course of the localizer, which is used with other functional parts of the ILS, is called the front course. The localizer signal emitted from the transmitter at the far end of the runway is adjusted to produce an angular width of between 3° and 6° as necessary, to provide a linear width of approximately 700 feet at the runway approach threshold.

The localizer provides course guidance throughout the descent path to the runway threshold from a distance of about 18 nautical miles from the antenna site, between an altitude of 1000 feet above the highest terrain along the course line 4500 feet above the elevation of the antenna site.

### GLIDE SLOPE

The UHF glide slope transmitter, operating on one of the twenty ILS channels within the frequency range of 329.3 MHz and 335.0 MHz radiates its signals primarily in the direction of the localizer front course.

The glide slope transmitter is located between 750 feet and 1250 feet from the approach end of the runway (down the runway) and offset 400 to 600 feet from the runway centerline. It transmits a glide path beam of 1.4° wide. The term glide path means that portion of the glide slope that intersects the localizer.

The glide slope, and the localizer are on "paired" frequencies. The localizer (VHF) provides the pilot with the horizontal information. While the Glide Slope (UHF) provides the pilot with the vertical information needed to land the aircraft.

## Aircraft (continued)

One other device used in ILS systems are Marker Beacons. This provides "range" information to the pilot.

### MARKER BEACONS

ILS marker beacons have a rated power output of about 3 watts or less and an antenna array designed to produce an elliptical pattern with approximate demensions of about 2400 feet in width, and 4200 feet in length at an altitude of 1000 feet.

Ordinarily, there are two marker beacons associated with an instrumnt landing system; the outer marker, and the middle marker. However, some locations may employ a third marker beacon to indicate the point at which decision height shhuld occur when used with a Categaory II ILS.

The outer marker (OM) normally indicates a posistion at which an aircraft at the proper altitude on the localizer course, will intercept the ILS glide path. The OM is modulated at 400 HZ and identified with continuous dashes at the rate of two dashes per second. The pilot would normally see a "purple light" in his cockpit instrumentation when receiving the OM signal.

The Middle Marker (MM) indicates a posistion at which the aircraft is normally 3500 feet from the landing threshold. This will also be the posistion at which the aircraft on the glide path will be at an altitude of approximately 200 feet above the elevation of the touchdown zone. The MM is modulated at 1300 Hz and identified with alternating dots and dashes keyed at the rate of 95 dot/dash (dit/dah) combinations per minute. The pilot would normally see a "yellow" light in his cockpit instrument.

The inner marker (IM) where installed, will indicate a point at which an aircrat is at a designated decision height (DH) on the glide path between the middle marker and the landing threshold. The IM is modulated at 3000 Hz and identified with continuous dots keyed at the rate of six per second. The pilot would normally see a "white" light on his cockpit instrument.

ILS Mininums with all components operative normally establish a (Decision Height MSL) with a HAT (Height above Touchdown) of 200 feet, d a visibility of one-half statute mile.

One last note: The ILS localizer operates in the VHF band between 8.1 and 111.9 Mhz. The ILS glide slope operates in the UHF band on paired frequency. Frequency pairing is listed in Part I of the AIM; lecting the VHF localizer frequency automatically tunes in the paired UHF ide slope frequency.

(Editor's note: Wayne included a page from an FAA publication that can also be found in the Airman's Information Manual depicting the ILS system graphically but the written notations would have been too small to read after reduction to fit in the Newsletter. If you are serious about aircraft listening, you should obtain the Airman's Information Manual which is not expensive. Write to: Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 and request a copy of "Price List 36". IBR)

### BEARCAT-220 AND AIRCRAFT SCANNING: A REVIEW

I have had my Bearcat-220 now for about 2 months and have throughly enjoyed listening to aircraft. The 220 provides very good reception on the aircraft band, but I have found antennas play an important part in what you will hear.

My 220 is connected to an Avanti AV-801, and does a good job of pulling in most stations (towers, FSS, center). But it does have

## Aircraft (continued)

some limitations. My antenna height is only about 20' and I do have trouble pulling in aircraft that are a distance away from the airports. Dennis Werblo, (OK-2) has his 220 hooked to a ringo "ranger" and it does a better job than my Avanti. But, his antenna is considerably higher. My suggestion, get an outdoor antenna system, and go up as high as possible.

After receiving my 220, I noticed a considerable amount of "hum". Back to Dennis, and he said it was transformer hum. So, Dennis ordered some new transformers from the Electra Company, and the hum for the most part, has disappeared.

One seeming disadvantage of the 220, is the fact that it only receives from 118.0 to 136.0 Mhz, while the "flight scan" will receive from 108 to 136 Mhz. I have found, that I can live without the 108-118 Mhz range. Mostly your VOR and ILS systems are down in that range, and you probably don't care to listen to that. What about ATIS (Automatic Terminal Information System) that is usually broadcast through the VORs? This is not a problem in the Oklahoma City Area. Wiley Post (PWA) ATIS is on 113.4. I can't receive it. But, Will Rogers World (OKC) ATIS is on 125.6. I can receive that. Other areas, may not be so lucky.

I am pleased with the 220, but there is one feature, that I must say, has "limited" use. I don't make use of the "aircraft" search feature at all. It covers too wide a range, and therefore, has a limited value in my opinion. Also, you may notice some "HAMS" on 2 meters somewhere in the middle of the band. This unfortunately, can't be avoided.

The 220 is in my opinion, a very well built scanner, that does a very good job in the aircraft bands. My only question, when did you say the Bearcat 300's were coming out?

ERIC (CA-LA-045) sent in frequency information for several Southern California airports but since this information is available to members by way of the "Airport/Facility Directory" it is not being printed here. Members interested in obtaining the directory for their area (not expensive) should write to: National Ocean Survey, Distribution Division C-44, Riverdale, MD 20840. Request a catalog offering the "Airport/Facility Directory" on a single issue and subscription basis.

Eric also reports that there is a good article in the September 1979 issue of "Popular Science" on transponders and how they are used to help prevent mid-air collisions.



# MILITARY



Robert B. Grove, Editor

Send all ARMY, NAVY, COAST GUARD, MARINE and AIR FORCE (including military aircraft) frequencies and radio system details to:  
Robert B. Grove, Route 1-Box 156, Brasstown, NC 28902. Sensitive military frequencies will not be published.

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I would like to thank Tony (NJ-005) and John (IL-012) for sending in newsclippings of an interesting government/military liason responsibility: transport of fissionable nuclear materials. An armor-plated truck trailer is escorted by a Chevrolet Suburban RV, carrying an arsenal in defense weapons to counter any terrorist attack.

These couriers keep two-way UHF communications open via a link (satellite?) to Albuquerque headquarters (Kirkland AFB) from anywhere in the country.

Shipment guards check in via radio (digital transmissions) every 30 minutes, and their status is registered automatically on a video display.

I was aware of the HF channels which used to be in use by the private service of Tri-State Trucking, Joplin, MO for DOE. Have any members any recent update information on these new satellite communications?

I wrote an article for Communications Magazine (June, 1976) which described a fictional scenario in which one of these trucks was commandeered for its cargo. According to this newspaper article, the job would be much harder to do now! Incidentally, the newspaper article was written by James Coates, Chicago Tribune, July 23, 1979.

Terry (IN-003) is looking for some information. Can any of our members supply him with frequencies for the 125th Wing of the Air National Guard at Ft. Wayne, IN? He says that in spite of watching their ops and seeing vehicles with VHF high-band antennas, he hasn't heard a word! If anyone has some ideas, please send them in, and I'll pass them on to Terry.

Mike (CA RI 011) has some additional information to add to my comment on page 22 of the August issue regarding image programming of scanners in order to extend the frequency ranges. He says that using the image formula (signal frequency + twice the IF = scanner display) there are several interesting military frequencies to be heard. Worth noting are:

138.74 MCAS El Toro, CA Fire Department

138.94 MCAS El Toro, CA Military Police

140.10 MCAS Crash crews at all bases, including many US Navy air fields  
Thanks, Mike!

Bill Godbey, one of our Florida members, mentions that a great deal of interesting military aeronautical communications doesn't necessarily restrict itself to UHF. In particular:

120.4 Sikorsky Helicopter tower, Pratt-Whitney Aircraft, West Palm Beach

126.2 Universal Military control tower frequency

126.3 NASA shuttle tower, Kennedy Space Center; also US Navy, Andros Is.

Thanks, Bill! Members are reminded that just because military

## Military, continued

aircraft are capable of flying, that doesn't make them less military for our column! Please send all Federal Government and Military frequencies, including aircraft, to this column.

From Bob (KS-001)

41.7 National Guard helicopters, Topeka, KS  
164.100 Ft. Leavenworth, KS base delivery  
165.1375 Richards-Gebauer AFB (MO) control  
166.225 Richards-Gebauer AFB (MO) ground control  
170.875 Ft. Leavenworth, KS US Bureau of Prisons  
173.5875 Richards-Gebauer AFB (MO) fire/crash crews (USAF nationwide)  
Very interesting list, Bob. Thanks!

One of our members who is in the military service has forwarded anonymously some information he picked up which should be of interest to any of our members who visits the state of Alaska. Apparently, the Northern Warfare Training Center at Ft. Greeley and the High Altitude Rescue Team of the US Army have repeater sites throughout the state. They use Motorola HT's and GE portables. Either system 1 or 2 is used depending upon the mission and the terrain:

SYSTEM 1: 37.00 (freq. 1); 36.85 (freq. 2)

SYSTEM 2: 150.475; 150.550

Thanks, Anonymous Donor!

From Jan (FL-010) and Robert (FL-012) FLORIDA MILITARY

148.225 Patrick AFB (Cape Kennedy), Flight Line Maintenance  
148.275 Patrick AFB, pagers  
163.4875 Patrick AFB, security  
Hang in there, Jan and Robert!

We were pleased to receive correspondence from a non-affiliated reader this month, Radio Research Group of Statesboro, GA. They indicate that they possibly would be interested in swapping some information with members. You might try writing to them at P.O. Box 7999, Statesboro, GA 30458. In addition, they supplied the following interesting group of frequencies.

### GEORGIA MILITARY BASES

163.5375 Ft. Stewart MP secondary  
163.5625 Ft. Stewart/Ft. Gordon motor pool  
165.0625 Ft. Stewart MP/Military Intelligence primary  
Ft. Gordon Hospital  
Hunter Field MP  
165.0875 Ft. Gillem Police; Ft. Gordon Fire Dept.  
165.1875 Ft. McPherson MP  
165.3375 Ft. Stewart Military Intelligence  
173.4875 Ft. Stewart Fire Dept.

That's about all the time we have this month. It's also all the correspondence we have this month! Many thanks to you contributors, and keep those cards and letters coming, folks!

Please send any confirmed military Low Band (30-50 MHz) frequencies to George DuBois (FCC Topics editor) as soon as possible. He is compiling a list that will be made available to members for a business-size SASE and three mint stamps inside (to help pay for photocopying). If possible, the list will appear later in the "Military" column. Since he is willing to do this service for us, please send in your confirmed Low Band military frequencies now. IBR

# FEDERAL GOV'T

Robert B. Grove, Editor

Send all non-military Federal Government frequencies, radio system details and related questions to: Robert B. Grove, Route 1-Box 156, Brasstown, NC 28902. Sensitive federal law enforcement frequencies will not be published.

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John (IL-10) is interested in the source of cyclical "beeping" he is hearing in Cleveland, Pittsburgh, Philadelphia, and Alexandria, VA., on 165.7625, 169.375, and 173.05 MHz. Apparently, the strong beeps repeat every 8.5 seconds. He says they are not from pagers. I checked my own file and find that they are allocated to FAA airport tone lighting and wind telemetry. I had similar listings in a previous column. Any members have other ideas on these? Thanks, John, for your interesting challenge.

Clyde (LA-90) is wondering where CIA hides out when they want to communicate. He suggests that they use non-government frequencies as a front for legitimate businesses. There is considerable evidence to support this thesis, but so far, no one has come up with any discrete frequencies. Anybody out there have more information on this tantalizing subject?

A close tie-in with the previous question: Does anyone know for sure whether there has been a land-mobile allocation, or authorization, in the 806-960 MHz range? Supposedly, the 902-928 MHz portion is Federal, but it is also ISM (industrial, scientific, medical), and should be loaded with awful noises. Any help on this one?

Bob Coburn has been wondering about three active frequencies in his area; I will show what I have on file; other members might be able to build on these:

166.000 Dept. Interior; USN (CA), Soyuz telemetry  
164.800 Dept. Ag.; Nat'l Park Service; Capitol Police (Wash. DC)  
167.175 Nat'l Park Service; TVA

He is also wondering whether Pease AFB OSI would be using the 400 MHz region. Can any of our members help here?

One of our members, now on duty in Alaska, has sent some interesting frequencies. Apparently, channel splitting is very different up there. Although these listings should be rightfully classified under Public Safety, I don't think we have an Alaska editor yet! Thanks, Phil, for this information:

161.130 input to 155.790 Alaska State Troopers dispatch  
161.010 input to 155.415 Alaska State Troopers/NCIC  
160.360 input to 155.010 Anchorage PD dispatch

In addition, the following US Forestry Service channels are active:  
169.175 repeater output; inputs: 169.875/.925/.975 & possibly 168.025.

In addition, he was wondering (and so am I) whether there are any VHF/UHF (or active HF) Defense Civil Preparedness Agency or Federal Emergency Management Agency frequency allocations. Members have any ideas?

A comment I made in a previous article regarding the use of external frequency converters to extend the coverage of programmable scanners

Federal Gov't. continued

has brought considerable correspondence. At this writing, I am familiar with only two low-cost, high-quality converter manufacturers:

Hamtronics (65 Moul Rd., Hilton, NY 14468)

Hermes (3997 Elkcam Blvd., SE, St. Petersburg, FL 33705)

Send for the descriptive information on their excellent lines of converters and preamplifiers for VHF and UHF. It would appear that other manufacturers have either gone by the wayside, or have assumed a very low profile of late!

Incidentally, did you know that there is a simple, inexpensive add-on device which will enormously extend the range of your scanner without any modifications, and it is not a converter? Excellent sensitivity, too! Listening in on 406-420, and 135-144 MHz is a snap with this device. Let's see if any of our readers have any ideas what this magical circuit is. I promise an answer next month!

From Jan (FL-010) and Robert (FL-012) Florida Federal Allocations

|          |                                                           |
|----------|-----------------------------------------------------------|
| 172.525  | Dept. Interior, Nat'l Park Service repeater output (ch.1) |
| 171.725  | Dept. Interior, Nat'l Park Service repeater input (ch.2)  |
| 34.83    | Dept. Interior, Fish and Wildlife Service primary         |
| 34.23    | Dept. Interior, Fish and Wildlife Service secondary       |
|          | KENNEDY SPACE CENTER                                      |
| 43.88    | Wildlife preserve management                              |
| 148.455  | Crawler operations                                        |
| 149.175  | Crawler operations                                        |
| 162.0125 | NASA missile barges                                       |
| 162.6125 | NASA launch support                                       |
| 163.4625 | Pan Am security at concession areas                       |
| 170.150  | Base communications                                       |
| 170.350  | Astronauts/VIP communications in media area               |
| 171.000  | NASA (unknown use)                                        |
| 173.5625 | Fire rescue ch.1                                          |
| 173.6625 | Fire rescue ch.2                                          |
| 173.6875 | Security                                                  |
| 173.7875 | NASA (unknown use)                                        |

From Gene (CA AL 003) For Bob (CA CC 005) and other members in Northern California: U.S. FOREST SERVICE

|          |          |                            |                        |
|----------|----------|----------------------------|------------------------|
| 166.5875 | (R) CH 1 | Northern California Area   | Fire Dispatch & Coord. |
| 171.2625 | (R) CH 2 | Northern California Area   | Fire Dispatch          |
| 168.6250 | (R) CH 3 | Northern California Area   | Region 5 Fire Dispatch |
| 170.5250 | (R) CH 4 | Northern California Area   | Region 5 Fire Dispatch |
| 171.5250 | (R) CH 1 | El Dorado National Forest  | Rangers                |
| 168.7500 | (R) CH 1 | Stanislaus National Forest | Rangers                |
| 168.7750 | (R) CH 1 | Tahoe National Forest      | Rangers                |
| 172.6500 | (R) CH 1 | Yosemite National Park     | Rangers                |

One parting comment this month. I received a note from an irritated member who asked why I should request membership contributions of frequency information when I didn't put any of my own file into the column. The truth be known, in all cases I cross-check what the membership sends in, often correcting or adding from my private collection. It must be pointed out that the responsibility of an editor is to sift through the contributions from other sources, assembling them in some sort of order, using his expertise to validate the information whenever possible, and submit the results for publication. An editor does not serve as a free library service, dispensing massive frequency files at the whim of a request. Most of us have worked long and hard to assemble

the material we have, and we are very reluctant to distribute wholesale copies of our frequency files to everyone who asks.

We thank those contributors who have been taking the time to send in discrete frequency lists from their own files. How about a few more for next month...including some from the member who requested mine?!

See you next month!

From MIKE (ID-001):

|     |           |                    |    |          |
|-----|-----------|--------------------|----|----------|
| BLM | Boise, ID | Fire Dispatch      | R  | 163.9375 |
| GSA | " "       | GSA Police         | R  | 417.200  |
| VET | " "       | VA Hospital Police | BM | 164.100  |

## Miscellany

RCMA, P.O. Box 4693,  
Riverside, CA 92514

From TONY (NJ-005):

### SCRAMBLERS

I read with interest the article in the July Newsletter concerning the apparent move by federal government agencies to protect the privacy of their sensitive communications. Before those of us who obtain great enjoyment from listening to these agencies panic, I offer you my thoughts on the matter.

Let me first address the subject of digital encoding. To the best of my knowledge there is currently only one communications equipment supplier, MOTOROLA, that offers a complete line of base station, repeater, mobile, and portable two-way radio equipment capable of supposedly secure voice communications. It would be very bad business to purchase large amounts of communications equipment that is presently incompatible with that of any other manufacturer. For instance, what if your supplier decides to increase their price by 100%? How do you get necessary parts if your supplier has a prolonged work stoppage? Until more manufacturers produce digitally encoded secure voice communications systems that are compatible, I don't think that we'll see too much of this equipment in use. Based on the nature of the service being offered, however, what manufacturer could possibly sell a supposedly secure voice communications system that another manufacturer says they have compatible equipment for? This isn't to say that we'll see no use of DVP and other forms of secure voice, but we should not worry about entire systems switching over to it. (A somewhat reliable source in my area informed me that the only DVP units currently in use in New York City are being used by the SS. As of this date, I've heard nothing but pure 16F3 on any SS channel in New York. According to my source, they're used only for "special assignments".) Also, the DVP option currently costs approximately \$1000.00 per unit equipped. It would be very expensive to equip entire fleets of SS, DEA, FBI, ATF, and Customs units with this luxury.

John (IL-010) sent in a photocopy of an ad briefly describing "Aural Studio-Transmitter Links" for use by commercial AM & FM radio stations and listing the frequencies of "148-174 MHz, 215-240 MHz, 300-330 MHz, 450-470 MHz and 890-960 MHz". The 215-240 MHz and 300-330 MHz ranges seem a little unusual for such operations. Does anyone have any info? (The company advertising is Moseley Associates, Inc., Santa Barbara Research Park, 111 Castilian Dr., Goleta, CA 93017, (805) 968-9621.)

From BOB (NC-006):

In the last issue, I mentioned the prospect of Radio Shack releasing a low-cost programmable scanner next year. It will in all

## Miscellany (continued)

probability be confined to the three FM bands, not including aeronautical AM as I previously reported.

Several members have alerted me to the fact that they are being solicited by other members to submit complete copies of their Federal Government frequency files, with emphasis on law enforcement.

It might be well to point out that some individuals who are wholesale distributing sensitive frequencies are under investigation by the FBI. Although it is doubtful that members complying with these dubious profiteers would be guilty of complicity, it is advisable to find out a little more about your pen pals before shipping out your coveted collection.

A recent issue of CB Magazine had an exhaustive list of discrete frequency allocations used by the police. Included were HF listings. I have had a number of questions regarding these HF allocations in the 1.6-8 MHz portion of the spectrum. Researching this thoroughly, I have determined that these old SSB/AM/CW authorizations are still assigned to some major US cities. Los Angeles was one of them. Contacting them by letter, I received a prompt, courteous, and most informative reply.

Apparently, these old frequencies have not been in use since the Watts riots of 1965. I believe we may safely assume that none of these HF allocations is ever used by American police agencies.

Hopefully, by the next edition of this newsletter, I will have formulated the costs for obtaining the IRAC microfiche or printout. At the present time, there appear to be dozens of interested members eager to participate in a cost-sharing basis. Obviously, some method will have to be worked out so that no one gets hurt...like me for instance! It is fine for members to say, "Sure, count me in". But when the ante-up time comes around, IRAC is going to want to see their money first. Possibly an escrow account could be established, with receipts circulated to depositors for their protection. I would be eager to hear suggestions from the membership. We must also remember that once the IRAC master file is acquired, there is the additional costly process of duplication and distribution. Anyone with ideas on a low-cost basis for these processes is invited to forward suggestions.

From CHUCK (PA-005): I recently went through the 800 MHz licensees in the FCC microfiche files. Found a lot of licensees in the New York/North Jersey area, Los Angeles area, Texas and Chicago area. Not too many licensees listed for the Philadelphia area, however, I'm starting to notice a few 800 MHz antennas lately. Also noticed a few 800 MHz antennas in the LA area. Chicago, as many know, has established an extensive 800 MHz system for its fire department. Probably other municipalities will go this route as long as there is no equipment commercially available to monitor these frequencies. The repeater input frequencies are 806-821 MHz and the output frequencies for repeaters are 851-866 MHz.

Are any of our members interested in a book which would give technical specifications and information about various surplus radio equipment? If so, let Bob Grove, our Military/Federal columns editor, know. He is seriously considering compiling such a book for publication.



# VHF Marine

Rod O'Connor, Editor

Send information, articles, frequencies and how they are used and questions that relate to private, commercial and Coast Guard VHF maritime and inland waterways radio communications to: Rod O'Connor, USCG Group, 259 High St., South Portland, Maine 04106.

This is my first, of what I hope will be many, columns on the VHF Marine Band. Here is a detailed list of the major marine frequencies which are in use today throughout the U.S. and Canada.

Next month we will start pulling the marine band apart, and examining the many various uses in the VHF Marine Spectrum. The Marine Operators are the first in a series of informative and interesting aspects of "Marine-Scanning".

## UNITED STATES VHF-FM MARITIME MOBILE FREQUENCY PLAN

| Channel Designator | Frequency Ship | Coast   | Points of Communications | Authorized Communications    |
|--------------------|----------------|---------|--------------------------|------------------------------|
| 65                 | 156.275        | 156.275 | ship-ship/ship-coast     | Port Operations              |
| 66                 | 156.300        | ---     | ship-ship                | Inter-ship                   |
| 66                 | 156.325        | 156.325 | ship-ship/ship-coast     | Port Operations              |
| 67                 | 156.350        | 156.350 | ship-ship/ship-coast     | Commercial                   |
| 67                 | 156.375        | ---     | ship-ship                | Commercial                   |
| 68                 | 156.400        | ---     | ship-ship                | Commercial                   |
| 68                 | 156.425        | 156.425 | ship-ship/ship-coast     | Non-commercial               |
| 69                 | 156.450        | 156.450 | ship-ship/ship-coast     | (see note)##                 |
| 69                 | 156.475        | 156.475 | ship-coast               | Non-commercial               |
| 70                 | 156.500        | 156.500 | ship-ship/ship-coast     | Commercial                   |
| 70                 | 156.525        | ---     | ship-ship                | Non-commercial               |
| 71                 | 156.550        | 156.550 | ship-ship/ship-coast     | Commercial                   |
| 71                 | 156.575        | 156.575 | ship-coast               | Non-commercial               |
| 72                 | 156.600        | 156.600 | ship-ship/ship-coast     | Port Operations              |
| 72                 | 156.625        | ---     | ship-ship                | Non-commercial               |
| 73                 | 156.650        | 156.650 | ship-ship/ship-coast     | Navigation                   |
| 73                 | 156.675        | 156.675 | ship-ship/ship-coast     | Port Operations              |
| 74                 | 156.700        | 156.700 | ship-ship/ship-coast     | Port Operations              |
| 74                 | 156.725        | 156.725 | ship-ship/ship-coast     | Port Operations              |
| 15                 | ---            | 156.750 | coast-ship               | Environmental                |
| 16                 | 156.800        | 156.800 | ship-ship/ship-coast     | Distress, Safety and Calling |
| 17                 | 156.850        | 156.850 | ship-ship/ship-coast     | State Control                |
| 77                 | 156.875        | ---     | ship-ship                | Commercial                   |
| 18                 | 156.900        | 156.900 | ship-ship/ship-coast     | Commercial                   |
| 78                 | 156.925        | 156.925 | ship-coast               | Non-commercial               |
| 19                 | 156.950        | 156.950 | ship-ship/ship-coast     | Commercial                   |
| 79                 | 156.975        | 156.975 | ship-ship/ship-coast     | Commercial                   |
| 20                 | 157.000        | 161.600 | ship-ship/ship-coast     | Port Operations              |
| 80                 | 157.025        | 157.025 | ship-ship/ship-coast     | Commercial                   |
| 24                 | 157.200        | 161.800 | ship-public coast        | (see note)##                 |
| 84                 | 157.225        | 161.825 | ship-public coast        | (see note)##                 |
| 25                 | 157.250        | 161.850 | ship-public coast        | (see note)##                 |
| 85                 | 157.275        | 161.875 | ship-public coast        | (see note)##                 |
| 26                 | 157.300        | 161.900 | ship-public coast        | (see note)##                 |
| 86                 | 157.325        | 161.925 | ship-public coast        | (see note)##                 |
| 27                 | 157.350        | 161.950 | ship-public coast        | (see note)##                 |
| 87                 | 157.375        | 161.975 | ship-public coast        | (see note)##                 |
| 28                 | 157.400        | 162.000 | ship-public coast        | (see note)##                 |
| 88                 | 157.425        | ---     | ship-ship                | Commercial                   |

Notes: # This is a shared Commercial-non-commercial Channel.  
## Public Correspondence Channels.



# MONITORING & THE LAW

Bob McGovern, Editor

Send all articles, references, copies of monitoring laws and questions pertaining to the legal aspects of monitor radio listening to: Bob McGovern, P.O. Box 5041, Lighthouse Pt., FL 33064.

## MAIL

An interesting news item was received this month, and if correct, it constitutes a victory for monitor radio listeners in the State of New Jersey. According to a letter received by DAN (ND-001), the New Jersey anti-monitoring law is one of several New Jersey laws that were REPEALED effective 9/1/79 as the result of a new law that repealed specific laws considered frivolous or obsolete. For additional information, consult page 68 of the August 79 issue of QST.

(Editor's note: If for some reason, the New Jersey State Legislature feels that there should be some control of mobile monitoring, it ought to examine Oklahoma's statute as published in the August issue of this newsletter.)

Another newsworthy item was submitted by BOB (NY-025) and it concerns the monitoring of federal law enforcement radio frequencies by the news media. The following is a summary of the event described in the New York Times, July 25, 1979.

"The Federal Bureau of Investigation and William Dedrick, husband of the New Jersey woman kidnapped last weekend both charged yesterday that the woman's life had been endangered by the action of a New York television crew that followed and filmed Mr. Dedrick's movements before he dropped off the \$217,000 in ransom money that bought the release of his wife. Two segments, billed as exclusive coverage by the station's reporter, John Miller, had been obtained by following Mr. Dedrick with a camera. Mr. Miller told fellow newsmen that he had been able to monitor FBI communications with sophisticated radio equipment. The people who were involved in this put that woman's life in danger, no question about it, Michael McDonnell, spokesman for the FBI's Newark office, said yesterday."

It does seem unfortunate that some individuals and organizations monitor sensitive transmissions of agencies like the FBI and then act in a negligent or reckless manner by interfering with official operations. All of this may eventually lead to one or two actions on the federal level. First, it is very possible that federal agencies will expand its voice security to digital scrambling and/or shift its frequencies to ranges which scanner receivers will be unable to receive. To some extent this is being done with one federal agency which I shall not name. Second, the day may come when it will be unlawful for even hobby listeners to monitor certain specified, sensitive frequencies. All of this could occur as the result of those persons who misuse the information which they hear over their radios. Do we, hobbyists, wish to be restricted in what we monitor? Absolutely not.

# Public Safety

This column is for reporting Public Safety and Special Emergency frequency information, radio system details, radio codes, dispatch areas, unit numbering systems, etc. for police, sheriff, fire, state forestry, highway patrol, state police, college/university police, local government, highway maintenance, ambulances, paramedics, hospitals, life guards, search & rescue, flood control, etc. Input and questions for this column must be sent to the proper regional PS editor listed below.

## THE FREQUENCIES AND RADIO SYSTEMS COLUMN --- DISCONTINUED

John Pilger, the F&RS column editor, has resigned as editor for several reasons, one being, "I have recently been appointed Vice-Chairman for disaster operations with the Prince Georges County (MD) Red Cross, an assignment which will require a tremendous amount of time." I am grateful to John for his help as editor of the column.

John's resignation plus lack of input to some of the F&RS regional editor's has given me a new and perhaps even better idea. The idea is to discontinue the F&RS column and replace it with several separate columns, the first and most important being "Public Safety". The PS column will contain information on the services listed in the above heading. The column will be in three parts, "Public Safety - East", "Public Safety - Central" and "Public Safety - West", roughly dividing the country into thirds. The column name, "Public Safety", is more consistent with the other column headings in the Newsletter. Actually, the column name "Frequencies and Radio Systems" was a misnomer because many other columns also dealt with frequencies and radio systems which may have caused some confusion.

The "CANADA" column will now operate independently and contain Canadian frequencies in many different categories.

An "INTERNATIONAL" column will also operate independently and contain, when available, monitoring info and frequencies for all countries other than the United States and Canada.

There are still remaining several radio services for which there is no column. So, a new column is being started for all categories of radio services not covered in any of the other columns. This column will include: business, private patrol and security, industrial, utility companies, mobile telephone, paging, news media, taxis, trucks, buses, forest products, petroleum industry, tow trucks, etc. One editor will handle this for the entire country. If later it becomes too much for one person it can be divided into East and West or if one particular category becomes particularly popular it could develop into a column of its own.

I have had some difficulty coming up with a name for this column and have decided for lack of a better name to call it "THE OTHER COLUMN". So, if you have frequency and radio system information about a particular service that does not fit properly into one of the other columns, send it to "THE OTHER COLUMN".

If you would like to know P.S. or Special Emergency frequency info not listed in "Police Call" or if you need details in addition to what is in "Police Call", write to the P.S. editor for your area. If he knows, he will publish it for the benefit of all. If he does not, he will

## Public Safety (continued)

publish the question and any member who knows the answer will be encouraged to send it to that editor for publication.

Please support our new Public Safety column by sending information. Remember, do not send items to the Public Safety column if they belong in one of the other columns. Check all the column headings first. Do not send in frequencies about which you give little information. You must supply more information than is given in "Police Call" or they are of little value to readers and will not be printed. Give info like uses, channel numbers, dispatch areas, etc.

## PUBLIC SAFETY - EAST

Send Public Safety and Special Emergency frequencies, radio system details and questions for Connecticut, Delaware, District of Columbia, Florida, Georgia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia and West Virginia to: Richard Barnett, P.O. Box 428, Newton Highlands, MA 02161.

The following was prepared by Chuck Gysi, the former DE MD NJ PA F&RS regional editor, who has now moved to editor of "The Other Column". Part of this material apparently was intended for the September Newsletter but was not included for some reason. Chuck notes that he received more input then he could print for October so the remaining material will be divided according to subject matter and appear in PS-East and "The Other Column" in the near future.

I removed part of his first paragraph, now outdated, so that's why it starts way at the right.

This month, I thought I'd touch on frequencies used by governmental agencies in the city of Philadelphia, that being the closest to me. Perhaps someone can do the same with their city as I have done below. These cities would include, but not be limited to are: Baltimore, Wilmington, Pittsburgh, Harrisburg, Newark, etc., including smaller cities such as Trenton, Erie, Scranton, Hagerstown, your own county or even your town, no matter how small. But don't copy details and frequencies right out of Police Call unless you can add information, such as a local government channel is used for prisons, buses, etc. Anyway, here we go with the city of Philadelphia.

|         |         |                                               |
|---------|---------|-----------------------------------------------|
| 31.14   | KGA 349 | SEPTA (bus repair crews)                      |
| 37.78   | various | Philadelphia Electric Co.                     |
| 47.28   | KGB 577 | PennDOT highway maintenance                   |
| 47.30   | KGB 577 | PennDOT highway maintenance                   |
| 47.90   |         | Philadelphia Electric Co. mobiles             |
| 151.895 |         | Phila. Second Alarmers fire canteen           |
| 153.410 | KGG 727 | Philadelphia Gas Works                        |
| 153.560 | KGB 320 | Philadelphia Gas Works                        |
| 154.100 | KWX 532 | Delaware River Port Authority R               |
| 154.600 | KM 5520 | Community College of Philadelphia portables   |
| 154.890 | KGE 905 | Delaware River Port Authority                 |
| 155.250 | KGA 810 | Phila. State Hospital at Byberry police       |
| 155.670 | KXH 319 | Penna. State Police Belmont barracks base     |
| 155.910 | KXH 319 | Penna. State Police Belmont mobiles           |
| 156.120 | KRV 276 | Delaware River Port Auth. bridge maintenance. |
| 156.650 | KBA 339 | Burlington-Bristol Bridge navigational        |
|         | KBA 328 | Tacony-Palmyra Bridge navigational            |
| 156.700 | KEW 842 | Delaware River Port Auth. port operations.    |

Public Safety - East (continued)

|          |         |                                                                                         |
|----------|---------|-----------------------------------------------------------------------------------------|
| 158.940  | KIM 719 | Holmesburg Prison                                                                       |
|          | KCN 979 | House of Corrections                                                                    |
| 173.250  | KGY 413 | Philadelphia Gas Works                                                                  |
| 173.300  | KGY 413 | Philadelphia Gas Works                                                                  |
| 451.250  | KGC 742 | Philadelphia Water Dept. R                                                              |
| 451.525  | KWS 303 | Philadelphia Electric Co. R                                                             |
| 453.425  | KYB 697 | Delaware River Port Authority R                                                         |
| 453.450  | KGG 761 | Phila. Div. of Aviation (Internat'l Airport)                                            |
| 453.675  | KLY 932 | Port Authority Transit Corp. R                                                          |
| 453.725  | KGF 991 | Phila. Dept. of Public Property (streets) R                                             |
| 453.775  | KGF 991 | Phila. Dept. of Public Property (streets) R                                             |
| 453.850  | KAV 718 | Phila. International Airport police                                                     |
| 453.925  | KGF 991 | Phila. Dept. of Public Property (streets) R                                             |
| 460.375  | KRX 320 | Delaware River Port Authority police R                                                  |
| 460.425  | KRX 322 | Delaware River Port Authority police R                                                  |
| 463.000  | KWX 662 | Philadelphia paramedics R (med-one)                                                     |
| 463.600  | KBV 363 | Philadelphia School District R                                                          |
| 500.3875 | KCE 583 | Phila. Div. of Aviation (Internat'l Airport)                                            |
| 500.4375 | KNM 390 | Redevelopment Authority of Philadelphia R                                               |
| 500.4625 | KIA 884 | Phila. Housing Authority police R                                                       |
| 500.8125 | KXG 831 | Port Authority Transit Corp. R                                                          |
| 500.8375 | KXG 831 | Port Authority Transit Corp. R                                                          |
| 500.8875 | KXG 831 | Port Authority Transit Corp. R                                                          |
| 500.9125 | KXG 831 | Port Authority Transit Corp. R                                                          |
| 500.9875 | KNO 576 | Burlington County Bridge Commission police<br>(Tacony-Palmyra and Burlington-Bristol) R |

\*PHILADELPHIA VOLUNTEER AMBULANCE CORPS

|         |          |                                        |
|---------|----------|----------------------------------------|
| 37.94   | KGR 375  | 50th Ward Community Ambulance Assn.    |
| 37.98   | KFR 729  | Olney Community Ambulance              |
| 45.92   | KLW 257  | South Phila. Community Ambulance Assn. |
| 47.58   | KGC 972  | Burholme First Aid Corps               |
| 155.160 | KFQ 696  | Northeast First Aid Corps              |
| 155.175 | KUJ 661  | Wynnebrook Community Ambulance Assn.   |
| 155.220 | KJW 584  | Wissinoming First Aid Corps            |
| 155.235 | KWI 667  | Rhawnhurst-Bustleton Ambulance Assn.   |
| 155.280 | KDZ 481  | 49th Ward Community Ambulance Assn.    |
| 462.575 | KAA 8809 | Northwest Community Ambulance Corps R  |

\*PAID AMBULANCE COMPANIES IN PHILADELPHIA

|          |         |                                              |
|----------|---------|----------------------------------------------|
| 46.04    | KTR 530 | Delaware Valley Ambulance                    |
| 155.280  | KIB 578 | American Ambulance Assn.                     |
|          | KKC 625 | Centennial Ambulance Service                 |
|          | KOE 417 | Medical Corps Ambulance Service              |
| 461.025  | KWL 948 | Quaker City Ambulance Service R              |
| 462.950  | KIG 686 | Professional Paramedical Service R           |
| 463.325  | KST 660 | Oxford Circle Ambulance Assn. R              |
| 463.775  | KWV 942 | Emergency Paramedical Services R             |
| 464.025  | KYM 606 | Major Ambulance Service R                    |
| 464.150  | KCA 598 | Main Line Ambulance Inc. R                   |
| 502.1375 | KMM 899 | Montgomery County Paramedic Ambulance Svc. R |
| 502.8375 | KNP 463 | A&A Ambulance Service R                      |

I have not included fire and police channels for the city of Philadelphia as these frequencies are well known enough and are well-covered by the directories. I did not list it, but SEPTA (Southeastern Pennsylvania Transportation Authority) is licensed for 13 channels in the 502-MHz range with bases in Philadelphia, Trooper and Sugartown. These channels are not in use yet, but apparently will be used for two-way radios that will be placed on the buses. Probably sometime within the next year, the channels will be in use. I'll try to keep

Public Safety - East (continued)

you posted (or you let me know if you hear anything). If you know of any frequencies I missed in Philadelphia, let me know. I tried to be as thorough as possible, but could have missed something. For those interested, I have a copy of a map showing location of the police districts in Philadelphia. If you want a copy, send me a self-addressed, stamped envelope.

Our mid-Atlantic members came through! Got a lot of lists of frequencies and codes from several members. Here's our column for October.

From RICH (PA-027):

\*City of Pittsburgh Police

Ch. 1 - 453.100 - Precincts 2,3,4,5,6.

Busiest of the four frequencies. No codes or 10-codes are used. Unit identifiers are as follow:

21-29 Squad cars  
241-244 Arrest wagons  
251-254 Equipped with stretchers for use when medic units are busy.

The above identifiers are used on all channels with the precinct number preceding the car number (ex. 31 is a squad car in third precinct--given over radio as THREE-ONE, not thirty-one).

Ch. 2 - 453.250 - Precincts 7,8,9 and Mt. Oliver.

Not as busy as channel 1, but is quite active in the evening (1900-0200). At 0200, all units switch to ch. 1. Mt. Oliver is a small town located in the middle of the city, working with city police frequently, thus operating on the same channel.

Ch. 3 - 453.400 - Detectives

All detective activities take place on this channel. Identifiers are D-20, D-6, D-15, etc. Not too active.

Ch. 4 - 453.550 - Information

All cars use this channel for vehicle registration info and wants and warrants. Also used for conversations which would tie up other channels. When a major incident occurs in one area, all the units involved will switch to this channel to keep other channels clear.

The frequencies 453.70 and 453.85 are authorized but not used by police at this time.

Some surrounding municipal frequencies follow:

Baldwin Borough - 460.350 - KBI 864

Identifiers are Car 1,2,3,4,5 and Car 6 is the chief.  
Codes:

900 - return to station  
District 1 - North Baldwin area  
District 2 - Middle Baldwin area  
District 3 - South Baldwin area  
10-23 - on the scene  
10-24 - call completed  
10-89 - bomb threat

Brentwood Borough - 460.450

Identifiers:

|                  |                               |
|------------------|-------------------------------|
| 10-A Ambulance   | 14-J Juvenile car             |
| 12-2 Squad car   | 16-K K-9 car                  |
| 11-T Traffic car | 18-C Chief's personal vehicle |

Strange 10-codes are used by this department.

10-95 - Acknowledgment      10-101 - Out to eat

Public Safety - East (continued)

10-34 - return to station 10-97 - Pick up officer  
Whitehall Borough - 460.450 (no codes used)

Identifiers:

|                 |                 |
|-----------------|-----------------|
| 41 Unmarked car | 44 Ambulance    |
| 42 Squad car    | 45 Unmarked car |
| 43 Squad car    |                 |

Pleasant Hills Borough - 460.400

Identifiers:

|                 |              |
|-----------------|--------------|
| 20 Unmarked car | 23 Squad car |
| 21 Squad car    | 24 Ambulance |
| 22 Squad car    |              |

Code: 900 - bank detail.

Jefferson Borough - 460.400

Identifiers:

|              |                      |
|--------------|----------------------|
| 30 Unmarked  | 37 Squad car         |
| 35 Squad car | Medic 34 - Ambulance |
| 36 Squad car |                      |

The above mentioned municipal frequencies are referred to as the S-4 regional radio system. It utilizes four-channel mobile and portable radios. All cars and ambulances are capable of communicating with each other. The channel set-up is as follows:

Ch. 1 - 460.400 - Pleasant Hills/Jefferson  
Ch. 2 - 460.350 - Baldwin  
Ch. 3 - 460.450 - Brentwood/Whitehall  
Ch. 4 - is the mobile input frequency for each of the above (i.e. Baldwin Ch. 4 is 465.350).

City of Pittsburgh Medical Service

|                      |  |                                    |
|----------------------|--|------------------------------------|
| Dispatch 1 - 462.950 |  | Medic 1 through Medic 12 are Chevy |
| Dispatch 2 - 462.975 |  | modular ambulances                 |
| Med 2 - 463.025      |  | Medic 20 thru 39 - supervisors     |
| Med 4 - 463.075      |  | Official 1 - director              |
| Med 8 - 463.175      |  | Channels are quite active.         |

Allegheny County fire departments not on county frequencies:

45.28 Mt. Lebanon, Castle Shannon, Dormont  
154.25 West Mifflin  
158.82 Bethel Park

New Allegheny County system: (Rich reports this system has just been put into operation.)

|                   |       |          |
|-------------------|-------|----------|
| Allegheny Police  | Ch. 1 | 470.3125 |
|                   | Ch. 2 | 470.3375 |
|                   | Ch. 3 | 470.3625 |
| Allegheny Sheriff | Ch. 4 | 470.4125 |
|                   | Ch. 5 | 470.4375 |
|                   | Ch. 6 | 470.4875 |

Channel 7 (471.1375) is a regional channel which has cross-patching to interconnect any fire, police or medical unit in the county. The new system uses the Motorola Identifier system and all car numbers light up on the base when the microphone is keyed.

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From THOMAS (PA-017):

Thomas would like to know when the above system for Allegheny County will be put into operation. Rich, above, reports the system in operation. Perhaps one of the Pittsburgh area members can submit information on this new system as members seem to be interested in it. Thomas also lists an additional frequency in his list: 470.3875.

Public Safety - East (continued)

Fire frequencies: Pittsburgh KGA 519 154.13  
base is called "fire alarm."

Allegheny County fire: South Hills 33.76  
Mon-Yough 33.80  
Master 33.86  
North 33.92

These frequencies are used by the volunteer departments in the county. Most activity is on the master frequency (33.86).

The following is from the former F&RS regional editor who covered DC FL GA NC SC VA WV AL AR LA MS OK TN & TX. This editor, who chose to remain anonymous due to the nature of his employment, has just recently resigned for personal reasons but not due to lack of interest in the Newsletter or the club.

From MARVIN (TX-002):

TEXAS

|    |               |               |        |      |         |
|----|---------------|---------------|--------|------|---------|
| FD | Port Arthur   | Dispatch      | KKA642 | B/MR | 154.19  |
| FD | Beaumont      | Dispatch      | KKC989 | B/MR | 154.40  |
| FD | Orange        | Dispatch      | KKD994 | BM   | 154.22  |
| FD | Jefferson Co. | Mutual Aid    | KKP466 | B    | 154.28  |
| FD | Groves        | Dispatch      | KKS631 | BM   | 154.13  |
| LG | Port Arthur   | city gov't    | KKH431 | BM   | 153.41  |
| LG | " "           | " "           | KCI406 | BM   | 155.04  |
| LG | " "           | " "           | KVT797 | B/MR | 155.805 |
| PD | Port Arthur   | inter city    | KKA938 | B    | 155.37  |
| PD | " "           | Mutualaid ch1 | KUY506 | B/MR | 460.275 |
| PD | " "           | Mutualaid ch2 | KUY506 | B/MR | 460.35  |
| PD | " "           | Car/Car ch 3  | KUY506 | BM   | 460.225 |
| PD | " "           | Dispatch ch 4 | KUY506 | B/MR | 460.025 |
| PD | " "           | Tactical ch 5 | KUY506 | B/MR | 460.15  |
| PD | Beaumont      | Dispatch      | KUY501 | B/MR | 460.075 |
| PD | Beaumont      | Tactical      | KUY501 | B/MR | 460.175 |
| PD | Orange        | Dispatch      | KUY511 | B/MR | 460.425 |
| PD | Nederland-    |               |        |      |         |
|    | Pt Neches     | Dispatch      | KUY505 | B/MR | 460.40  |
| SO | Jefferson Co. | Dispatch      | KUY499 | B/MR | 460.50  |
| SO | Orange Co.    | Dispatch      | KUY510 | B/MR | 460.20  |

C.D.M. (MD-004) would like PD and FD info (in addition or in more detail than exists in "Police Call") for the cities and towns in the following counties in Florida: Flagler, Volusia, Seminole, Osceola, Indian River, St. Lucie and Martin.

He would like to know if the Florida Highway Patrol has made the move from Low Band to High Band and, if so, what are the new frequencies, dispatch centers, etc. He also would appreciate Florida Fish and Game frequency info.

ROD (VA-012) would like any frequency info for the D.C. area.

## PUBLIC SAFETY - CENTRAL

Send Public Safety and Special Emergency frequencies, radio system details and questions for Alabama, Arkansas, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, North Dakota, Oklahoma, South Dakota, Tennessee, Texas and Wisconsin to: Mike Redman, P.O. Box 1177, St. Charles, MO 63301.

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Editor's note: Mike, the former F&RS regional editor for several "Central" states, never fails to send in a column, so it may have gone astray in the Post Office or as a result of a change in the editorial system which required a last minute cross-country mailing. Or, maybe I've lost it in the piles of paperwork I have around here.

Look for his new Public Safety - Central column next month.

## PUBLIC SAFETY - WEST

Send Public Safety and Special Emergency frequencies, radio system details and questions for Alaska, Arizona, California (except 7 Southern California counties), Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming to: Lyle Galdiera and Bob Gehri, 3205 SW Corbett, Portland, OR 97201.

Send material and questions for the Southern California counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura to: Eric Christensen, 2360 Brentford Rd., San Marino, CA 91108.

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Editor's note: Lyle and Bob are new editors and their column will no doubt begin with the next issue. They will cover all the states listed in the heading except Southern California, which will be handled by Eric and is equivalent in activity to several of the other states combined.

Eric submitted two very nice contributions for the Southern CA F&RS column that were printed in the July and September Newsletters. He has now joined us officially as a Public Safety editor.

An introduction from Eric: " I am a Criminal Justice oriented person, having recently graduated from California State University, Long Beach, with a bachelor's degree in Criminal Justice-Law Enforcement. I also work as a police dispatcher for the University Police Department at C.S.U.L.B. I plan to enter a career in law enforcement, hopefully with the California Highway Patrol. I have toured numerous police communications centers including the C.H.P., Los Angeles Police, Los Angeles Sheriff, Long Beach Police, Pasadena Police, Newport Beach Police, Los Angeles County Fire, and Orange County Communications Control One, all in Southern California. I have been monitoring for about five years. My main interests include police, fire, federal law enforcement, Highway Patrol, marine, VHF radio, amateur 2 meter hams, etc."

Eric should make a good editor and has already demonstrated his abilities.

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From JEFF (CA-OR-012) - Info for Ray (CA-OR-056): Road departments in Newport Beach and Costa Mesa operate on the Local Government freqs:

Newport Beach - 158.880 - KMM444  
Costa Mesa - 45.080 - KJN680

Other services, such as parks, trash collection, etc., operate on these frequencies.

In Costa Mesa, 45.080 is also used for the police department as "F-3". The station, helicopter ("Eagle"), and sergeants have this frequency. It is good listening around change-of-watch and in the evening.

Corrections to Newport Beach PD/FD -

- Station 1 - Balboa Peninsula (Alvarado & Balboa)
- Station 2 - Behind City Hall, 32nd St.
- Station 3 - HQ - Fashion Island
- Station 4 - Balboa Island
- Station 5 - Corona Del Mar (Marigold & Coast Highway)
- Station 6 - Irvine/Mariners

(Editor's note: Eric, who originally submitted the info, also submitted these same corrections.)

## The Other Column

Chuck Gysi, Editor

Send frequency and radio system information to "The Other Column", which is this column, if it does not properly fit elsewhere. Services covered in this column include: business, private patrol and security, industrial, private utility companies, mobile telephone, paging, news media, motion picture industry, taxis, trucking lines, forest products, petroleum industry, manufacturing, tow trucks, etc. Send information and questions pertaining to the radio services covered in this column to: Chuck Gysi, P.O. Box 216, Willow Grove, PA 19090.

"The Other Column" will be edited by Chuck, the former DE MD NJ PA F&RS regional editor. He will officially start the column next month. The following are items that were on hand, written by Chuck and others that fit into the categories covered by this new column. This column is intended for use by members throughout the country.

### From ANONYMOUS (NJ-???):

In an anonymous note on a little piece of paper, I received a few casino monitoring tips for Atlantic City, the new Las Vegas of the east. He/she reports Resorts International Hotel Casino security operating on 464.675. I confirmed this on the FCC microfiche files and their call sign is KKZ 780 and are authorized for 20 mobiles. Anonymous also reports the new Boardwalk Regency Hotel Casino to be operating on 160.76. This is a channel in the middle of two railroad channels. I was unable to confirm this in the FCC files. Perhaps one of the digits are wrong or something. If so, I would appreciate this anonymous person get in touch with me and send me the proper frequency that the Regency is using. Other monitors would be interested I'm sure. This person also reports call boxes on the Atlantic City Expressway to be operating on 72.98 MHz, with call KLV-98. However, the FCC files report the New Jersey Expressway Authority is licensed on 72.50 MHz as KVL-98. They are authorized for 228 2-watt 7.2Fl call boxes along the A.C. Expressway.

### From CHUCK (PA-005):

Through a little research, I believe the following frequencies are used by the New Jersey Casino Control

"The Other Column" (continued)

Commission in Atlantic City.

460.175 WXX 657 RP 110 mobiles  
460.250 WXX 657 RP 5 mobiles/150 handhelds  
465.175 WXX 657 110 mobiles (input)  
465.250 WXX 657 5 mobiles/150 handhelds (input)

The address on the license is the same as the Casino Control Commission in A.C., although other Treasury Department offices are in the same building. This is a new license, and most likely is the commission. Can anyone confirm this or any other casino-related frequencies in the Casino City?

From IDEN (CA-RI-001): When I was on vacation recently, I noticed that dining room seating at the buffet of the Sahara Tahoe Casino was facilitated by many lovelies running around with handy-talkies. It worked very well and the radio procedure had similarities to taxi cab dispatching, seriously! I, for one, would be interested to learn more about the behind-the-scenes Las Vegas, Reno, Tahoe, Atlantic City hotel/casino radio systems.

Anyone know the frequency used by the KMPC traffic helicopter in Los Angeles? Couldn't find them on any of the frequencies they are listed for.

Anyone know of any 72-76 MHz equipment available? Found several licensees in this region. Has anyone ever tuned in these frequencies? Might be some interesting listening here.

From MIKE (ID-001):

|      |           |                     |    |         |
|------|-----------|---------------------|----|---------|
| BUS  | Boise, ID | City Buses          | BM | 158.820 |
| TAXI | " "       | Royal Cab           | B  | 152.270 |
| TAXI | " "       | " "                 | M  | 157.530 |
| TAXI | " "       | Yellow & Orange Cab | B  | 152.330 |
| TAXI | " "       | " " " "             | M  | 157.590 |
| NEWS | " "       | KFXD News           | R  | 166.250 |
| PAGE | " "       | Radio Paging        | B  | 152.224 |
| TV   | " "       | KBCI Ch 2 TV        | R  | 450.350 |
| TV   | " "       | KTVB Ch 7 TV        | R  | 450.550 |
| TV   | " "       | KIVI Ch 6 TV        | R  | 460.900 |

From ANONYMOUS (CA-???): DISNEYLAND

154.600 Security and operations  
154.570 Maintenance  
154.625 Pager frequency  
One (unknown) Low Band freq for ride operators

| <u>Prefix*</u>       | <u>Function</u>                |
|----------------------|--------------------------------|
| F                    | Fire Department                |
| OPS                  | Operations Supervisor          |
| C.F.A.               | Medical Unit                   |
| HUB                  | Central Security               |
| STAGE                | Dance & Entertainment Security |
| RED,BLUE,GREEN, ETC. | Monorails                      |
| RETLAW               | Railroad & Monorail Supervisor |
| R                    | Relief Shift (Security)        |
| P.L. or "LOT"        | Parking Lot Foreman            |
| "PATROL"             | " " Security                   |
| WED                  | Engineering Depar              |

## "The Other Column" (continued)

Suffix "ONE" indicates a park-wide manager (For example: OPS ONE is in charge of all rides in the park).

Codes:     101    Ride Down  
          102    Ride Up  
          100    Radio Silence (during fireworks, etc.)

All four digit numbers beginning with 4 or 5 are telephone numbers.

NOTE: The radios are all numbered! It is the radio number that indicates the unit name - not the function! (If a radio breaks then a new unit number is issued. It gets confusing!)

\* Self-explanatory and undercover prefixes not listed.

### ALABAMA

|      |            |                       |   |          |
|------|------------|-----------------------|---|----------|
| TV   | Birmingham | WAPI-TV               | R | 450.0875 |
| PRSS | Birmingham | Birmingham News       | R | 464.600  |
|      |            | paging and some voice |   |          |

these additions to the Birmingham area come again from David Beck (AL-001). He tells us that the WAPI freq is is a change from the prior report of 153.290. Thanks again.

From MARK (OH-001): Do any Cincinnati or Northern Kentucky member know the frequencies for Kings Island Amusement Park? On a trip there 7-17-79 I noticed several base station antennas which appear to be either VHF-High or UHF in length. Would trade for frequencies of my area or other data.

C.D.M. (MD-004) is seeking frequencies for news media traffic aircraft in Jacksonville, Daytona Beach, Orlando, W. Palm Beach, Ft. Lauderdale and Miami. Members with info please send it to the column editor.

From MARVIN (TX-002):

|    |                 |         |      |        |    |        |
|----|-----------------|---------|------|--------|----|--------|
| TV | Port Arthur, TX | KJAC-TV | Ch 4 | KKX215 | BM | 170.15 |
| TV | Beaumont, TX    | KFLM-TV | Ch 6 |        | BM | 161.70 |



# CANADA



Send Canadian frequency information, radio system details and other information relating to Canadian monitor radio listening and questions to: Rory B. McEvoy, 12 Castlegrove Blvd., Unit 9, Don Mills, Ontario, M3A 1K8. (416) 449-4170 weekends and 7-11 PM EST/EDT weekdays.

Rory is very enthusiastic about continuing as the CANADA column editor even though nothing appears this month as a result of our editorial system change. Canadian members and U.S. members who can monitor Canada are urged to support this column with all sorts of good Canadian frequencies and radio system details.

## MARKETPLACE

Members may advertise, free of charge, items wanted, items for sale and items for trade that are associated with the hobby of monitor radio listening above 30 MHz. No dealer ads accepted. Send to: Larry L. Miller, Pinecrest Apts., #F-21, Middle Ridge Rd., Amherst, OH 44001.

WANTED TO BUY OR WILL TRADE merchandise of equal value for the following pieces of receiving equipment which must be in working order, not modified, and in mint condition: Regency Flight Monitorradio, Model AR-136, later version in brown metal cabinet finished in wood-grain; Regency Aircraft Scanner, Model TME-8A; Regency Aircraft Scanner, Model TMR-8A; Regency Aircraft Scanner, Model TMR-1A. All replies must include asking price and telephone number. T. G. BANKS, P.O. Box 3174, Lewiston, Maine 04240.

FOR SALE: Bearcat 250 in top condition, in original carton. Cashier's check or M.O. for \$270 gets UPS prepaid shipment. BOB RHOADES (CA-SR-005), 1277 Glines Ave., Santa Maria, CA 93454. Please call first, (805) 937-4331.

FOR SALE: URR-35 UHF aircraft receiver, 220-410 MHz, includes manual, \$50.00. BC-639 VHF aircraft receiver, includes companion power supply and manual, \$35.00. SBE Optiscan with cards and manual, \$125.00. JOHN (CA-LA-052), (213) 273-0664.

Editor's note: Larry reports that he received only a tranceiver ad this month which, of course, is not monitor related and therefore was not printed. The above three adds were sent to the Riverside RCMA address.

# International

Richard Stein, Editor

This column is for reporting two-way communications frequencies above 30 MHz, radio system details, monitoring experiences and any other information relating to monitoring in countries other than the United States and Canada. Send to: Richard Stein, 456 Barrymore Pl., North Brunswick, NJ 08902.

The "International" column will not be as active as most of the other columns. Input will have to come from members who live in other countries and from members who have travelled and monitored in other countries. Members who can contribute to this column are urged to do so since it is a rare opportunity for Americans and Canadians to learn about monitoring in other countries.

Richard, our new editor, is a world traveler himself and has foreign language skills that may be very useful for this column.

It is my hope that in the not too distant future RCMA will start gaining members from Europe and other continents who will contribute to the Newsletter.

## CONTACT

A column devoted exclusively to the purpose of helping members contact other members. If you want to meet, telephone, or correspond with other members (by letter or cassette tape) in a certain geographic area or other members who have similar listening interests, this is the place to say so. Interested members will contact you directly so be sure to give your telephone number and best time to call and/or your address.

Write to: RCMA, P.O. Box 4693, Riverside, CA 92514.

I would like to correspond with members who are interested in aircraft listening: BARNEY SEDLACEK, 206 Lakeshore Dr., Kalispell, MT 59901, (406) 755-1200 weekends and 6-10 PM Mountain Time weekdays.

Anybody in the Philadelphia area that does a lot of federal government/military monitoring? If so, maybe we can get together and compare notes and frequencies. I have very extensive lists. CHUCK GYSI (PA-005), P.O. Box 216, Willow Grove, PA 19090

BILL WALL (AL-002), DAVID BECK (AL-001) and ED (AL-003) would really like to get together with you. David lives at 422 Laurie Drive, Birmingham, Alabama 35214.

I am interested in contacting any members in the New York City area for the purpose of forming an RCMA Chapter that will have regularly scheduled meetings, speakers, etc. Please write if interested. LESTER COMMODORE, 2930 West Fifth Street, Apt. 19R, Brooklyn, NY 11224.

## NEW MEMBERS

CA-KE- Roger Perrette, 612 Pentz St., Bakersfield, CA 93306  
 CA-LA-209 Leonard I. Delaney, 6606-C Woodward Ave., Bell, CA 90201  
 CA-LA-210 Tom Phillips, 709 Valle Vista Dr., Sierra Madre, CA 91024  
 CA-LA- Kenny, Studio City, CA 91604  
 CA-LA- Joseph A. Gorman, P.O. Box 3846 Vanowen Station, Van Nuys 91407  
 CA-LA- Albert Fitzwater, 420 Cedar #21, Long Beach, CA 90802  
 CA-LA- Hilda Wilson, 1206 Walnut, Long Beach, CA 90803  
 CA-LA- John Burrows, 1905 Camden Ave., West Los Angeles, CA 90025  
 CA- Lynn, Carmel, CA 93921  
 CA-OR- Walt Baranger, Box 8752, Anaheim, CA 92802  
 CA-SB- Don M. Clark, 34184 County Line Rd., Sp 98, Yucaipa, CA 92399  
 CA-SB- M. Curt Ganoe, 1150 Nancy St., Barstow, CA 92311  
 CA-SF-007 Bill Carey, 1029 Hyde St. Apt. #4, San Francisco, CA 94109  
 CA-SF-008 David Ebarle, 801 41st Ave., San Francisco, CA 94121  
 CA-SM-012 Mike Spinelli, 1301 Mills Ave., Burlingame, CA 94010  
 CT- David P. McCaffrey, Ninth District Rd., P.O. Box 564, Somers 06071  
 FL- James D. Ogden, 157 S. Lakewood Circle, Maitland, FL 32751  
 GA-008 Lewis S. Harvey, 415 East Hall St., Savannah, GA 31401  
 IL-044 Michael S. Perlman, 1010 Austin, Apt. 3C, Evanston, IL 60202  
 IL- Gordon E. Gizowski, 2518 W. 59th St., Chicago, IL 60629  
 IL- Edward Boe, 2100 Freeport Rd., 501E, Sterling, IL 61081  
 IN- Jeff Liberman, 1204 Emerald Court, Evansville, IN 47710  
 IN- Lawrence W. Ford, 222 W. Maple St., Jeffersonville, IN 47130  
 KS-005 Kirkman G. Baxter, 5013 Woodson, Mission, KS 66202  
 MA-020 Robert W. Blanchard, 53 Fifth Ave., Quincy, MA 02169  
 MD-011 David Mackes, 6 Stanley Dr., Baltimore, MD 21228  
 MD-012 Virginia T. Slick, 1 West Potomac St., Williamsport, MD 21795  
 MD- James G. Parr, 1639 Hardwick Rd., Baltimore, MD 21204  
 ME- Thomas G. Banks, P.O. Box 3174, Lewiston, ME 04240  
 MN- Philip F. Sauer, P.O. Box 12, Rice, MN 56367  
 MO- Occupant, Box 11562, Clayton, MO 63105  
 MO- Robert L. Lake, 602 Joyce Ann Dr., Manchester, MO 63011  
 NC- J.P. Griffin, P.O. Box 734, Matthews, NC 28105  
 NH- George B. Drew, 20 Branch Tpke, Concord, NH 03301  
 NH- Frank L. Bickford, Rd. 2, Wolfeboro, NH 03894  
 NJ- James Vecchiola, 11 The Crescent, Clinton, NJ 08809  
 NJ- Roger Schroeder, 506 Country Club Rd., Bridgewater, NJ 08807  
 NY-049 Robert J. LaPollo, 70-11 35 Rd., Jackson Hts., NY 11372  
 NY-050 John W. Snowden, 339 Fern Place, Bethpage, NY 11714  
 NY- Dave Smith, 230 S. Applegate Rd., Ithaca, NY 14850  
 NY- G. Davis, P.O. Box 067, Village Station, New York, NY 10014  
 OH- H. M., OH 44138  
 OH- Rick Poorman, 327 Marion Ave., Marion, OH 43302  
 OH- Dennis M. Burgess, 495 Jeannette Dr., Richmond Heights, OH 44143  
 OH- Walter R. Henderson, 3814 Autumn Dr., Huron, OH 44839  
 OK-005 Milton Komeski, P.O. Box 835, Wewoka, OK 74884  
 OK- Kenneth B. Fitzgerald, P.O. Box 307, Springer, OK 73458  
 SD-001 Arnold L. Salmon, Route 1, Box 119, Canova, SD 57321  
 TX- Nick H. Harlan, 6915 McCullum, Missouri City, TX 77459  
 TX- Joe Hallford, Jr., P.O. Box 1454, Fort Stockton, TX 79735  
 TX- Mark A. Sharp, 1339 Steves St., San Antonio, TX 78210  
 TX- Mr. Lynn Savage, 301 West Shady Grove, Irving, TX 75060  
 TX- Raymond Berry, 11522 North Lou-Al Court, Hedwig Village, TX 77024









TX- R.E. Wortham, 2104 Clark Blvd., Laredo, TX 78040  
 VA- William J. Powell, 2509 North 20th Rd., Arlington, VA 22201  
 VA- Mrs. Mickey Beard, 216 Glyndon St. NE, Vienna, VA 22180  
 VT- Larry Pierce, POB 153, Putney, VT 05346  
 WA-007 R.L. Gehri, 706 W. 43rd, Vancouver, WA 98660  
 WA- Charles M. Riblet, N. 3936 Pittsburg, Spokane, WA 99207  
 WI-011 Ron Laskiewicz, 3343 S. 8 St., Milwaukee, WI 53215  
 WI- Robert L. Goldstein, 510 E. Community Pl., Fox Point, WI 53217  
 WY- Skip L. Kear, Box 361, Dubois, WY 82513  
 CAN- W.P. Zaveda, P.O. Box 491, Don Mills, Ontario, Canada M3C 2T2  
 CAN- Matthew R. Brown, P.O. Box 14, Vedder Crossing, B.C., Canada  
 VOX 120

As of September 18, 1979,  
 RCMA had 914 members in 47 states and 5 foreign countries

|                 |     |                   |    |                   |    |
|-----------------|-----|-------------------|----|-------------------|----|
| ALABAMA .....   | 4   | MAINE .....       | 4  | PENNSYLVANIA ...  | 28 |
| ALASKA .....    | 1   | MARYLAND .....    | 13 | RHODE ISLAND .... | 2  |
| ARIZONA .....   | 7   | MASSACHUSETTS ..  | 20 | SOUTH CAROLINA .. | 4  |
| ARKANSAS .....  | 3   | MICHIGAN .....    | 17 | SOUTH DAKOTA .... | 1  |
| CALIFORNIA ..   | 459 | MINNESOTA .....   | 7  | TENNESSEE .....   | 1  |
| COLORADO .....  | 5   | MISSISSIPPI ..... | 1  | TEXAS .....       | 18 |
| CONNECTICUT ... | 9   | MISSOURI .....    | 7  | UTAH .....        | 0  |
| DELAWARE .....  | 4   | MONTANA .....     | 1  | VERMONT .....     | 1  |
| DC .....        | 0   | NEBRASKA .....    | 2  | VIRGINIA .....    | 14 |
| FLORIDA .....   | 23  | NEVADA .....      | 2  | WASHINGTON .....  | 8  |
| GEORGIA .....   | 8   | NEW HAMPSHIRE ... | 5  | WEST VIRGINIA ... | 2  |
| HAWAII .....    | 0   | NEW JERSEY .....  | 18 | WISCONSIN .....   | 12 |
| IDAHO .....     | 2   | NEW MEXICO .....  | 0  | WYOMING .....     | 2  |
| ILLINOIS .....  | 46  | NEW YORK .....    | 51 |                   |    |
| INDIANA .....   | 12  | NORTH CAROLINA .. | 6  | BERMUDA .....     | 1  |
| IOWA .....      | 9   | NORTH DAKOTA .... | 1  | CANADA .....      | 19 |
| KANSAS .....    | 5   | OHIO .....        | 21 | MEXICO .....      | 1  |
| KENTUCKY .....  | 3   | OKLAHOMA .....    | 6  | NETH ANTILLES ... | 1  |
| LOUISIANA ..... | 4   | OREGON .....      | 12 | SAUDI ARABIA .... | 1  |

The Radio Communications Monitoring Association is a radio club for persons interested in listening to two-way communications above 30 MHz as a hobby. RCMA was founded in May 1975 and is a Full Member of the Association of North American Radio Clubs (ANARC).

The goals of RCMA are:

- 1) To provide a fraternity for those who seriously pursue the hobby of monitor radio listening.
- 2) To try to be knowledgeable about two-way radio systems and operations.
- 3) To promote an understanding of the legal and ethical uses of monitor receivers.
- 4) To share information with and help other monitor radio listeners.
- 5) To try to understand and improve receivers, antenna systems and related equipment.
- 6) To offer suggestions and formal recommendations to manufacturers of monitor receivers and to manufacturers of other products related to the hobby.
- 7) To offer suggestions for and encourage the organizing and conducting of RCMA meetings and tours for groups in any geographic area.
- 8) To encourage and to facilitate contact between members.
- 9) To publish a regular club newsletter devoted to the hobby.

# RCMA

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Anaheim, CA 92803

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